

Acid Rain Program Policy Manual

**U.S. Environmental Protection Agency
Clean Air Markets Division
Washington, D.C.**

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INTRODUCTION

In order to reduce acid rain in the United States and Canada, Title IV of the Clean Air Act Amendments of 1990 established the Acid Rain Program. The program will cut sulfur dioxide emissions in half and substantially reduce nitrogen oxide emissions from electric utility plants. To achieve these reductions at the lowest cost to society, the program employs both traditional regulatory techniques and innovative, market-based approaches. The centerpiece of the program is the allowance trading system, under which affected utility units are allocated "allowances" (each "allowance" permits a utility to emit one ton of SO₂) based on historical fuel consumption and specified emission rates. The allowances can be traded as commodities.

To ensure that allowances are consistently valued and to ensure that all of the projected emission reductions are in fact achieved, it is necessary that actual emissions from each affected utility unit be accurately determined. To fulfill this function, Title IV requires that affected units continuously measure and record their SO₂, NO_x, and CO₂ emissions, as well as volumetric flow, opacity, and diluent gas levels. Most plants will fulfill these requirements by using continuous emission monitoring systems. The EPA initially promulgated regulations for Acid Rain Program continuous emission monitoring (CEM) requirements at 40 CFR Part 75 on January 11, 1993 (58 FR 3590) and has published interim and direct final rule revisions to Part 75 as well as technical revisions since that time. The most recent revisions include extensive rule revisions published on May 26, 1999 (64 FR 28564) to 40 CFR Parts 72 and 75 and May 14, 1999 revisions (64 FR 26484) to the flow test methods in 40 CFR Part 60, Appendix A.

Initially, this manual addressed policy questions involving the implementation of the Acid Rain CEM Program. Effective with Update #7 issued in November 1995, the name of this manual was changed to the "Acid Rain Program Policy Manual," and the manual now includes questions and answers related to Acid Rain Program policy issues other than Part 75 issues.

This manual provides a series of Questions and Answers that can be used on a nationwide basis to ensure that the Acid Rain Program is applied consistently for all sources affected by the program. The manual includes a general table of contents that lists the major topic area and a separate table of contents for each topic area that identifies the appropriate page reference for each Question and Answer applicable to that area. At the end of this manual, a key word index is provided that identifies for each key word the question number(s) where an issue concerning that key word is addressed.

This manual is intended to be a living document. The EPA will issue new Questions and Answers as they arise and will revise previously issued Questions and Answers as necessary to provide clarification. It should be noted that the materials in this manual are guidance materials only and are intended to clarify the regulations. This document is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. EPA may decide to follow the guidance provided in this document, or to act at variance with this guidance, based on its analysis of the specific facts presented. This guidance

Introduction

may be revised without public notice to reflect changes in EPA's approach to implementation, or to clarify and update text.

The contents of this manual are available to the general public through the Internet on the Acid Rain Homepage. The electronic version is provided in an Adobe Acrobat file (pdf format). Updates to the manual will be issued as separate Adobe Acrobat files. Periodically, EPA will reissue a complete manual that incorporates the updates. This version of the manual includes the original March 11, 1993 version, and Updates #1 through #12 to that original version. Table A, below, provides a list of the questions in this update and their status (new or revised). Two new sections, 22 and 24, are also included. Section 22 deals with Subtractive Configurations and Section 24 covers NO_x Apportionment. Finally, the contact list (Appendix A) has been updated and the "Quarterly Report Review Process for Determining Final Annual Data" (part of Appendix C) has been revised (the other documents from Appendix C have not been revised).

If after reviewing the regulations and this manual, the reader still has an unresolved issue, the reader should contact the appropriate EPA Headquarters or Regional Office contact. An Acid Rain CEM Program contact list appears in Appendix A of this manual.

In response to the recent rule revisions, and given that certain questions and answers that were time-sensitive are no longer applicable, this version of the manual "retires" a number of questions and answers. In addition, for ease of reference, EPA has retained the same numbering for all questions and answers from previous versions of the manual. The "History" information in each answer indicates when the question and answer was originally published and when, if applicable, it was retired or revised. The table of contents for each section also identifies which questions and answers have been retired or revised.

Table A: New/Revised Questions

Question Number	Status	Question Number	Status	Question Number	Status
1.13	New	10.31	New	22.3	New
1.14	New	10.32	New	22.4	New
1.15	New	10.33	New	22.5	New
1.16	New	10.34	New	22.6	New
1.17	New	10.35	New	22.7	New
2.16	New	10.36	New	22.8	New
3.26	New	10.37	New	22.9	New
3.27	New	11.6	New	22.10	New
3.28	New	13.4	Revised	22.11	New
3.29	New	13.5	Revised	22.12	New
3.30	New	13.6	Revised	24.1	New
3.31	New	14.90	New	24.2	New
3.32	New	14.91	New	24.3	New
3.33	New	14.92	New	24.4	New
3.34	New	14.93	New	24.5	New
3.35	New	14.94	New	24.6	New
4.23	New	14.95	New	24.7	New
5.6	Revised	14.96	New	24.8	New
6.5	New	14.97	New	24.9	New
7.22	New	14.98	New	24.10	New
8.30	New	14.99	New	24.11	New
8.31	New	14.100	New	24.12	New
8.32	New	14.101	New	24.13	New
8.33	New	14.102	New	25.13	New
8.34	New	15.28	New	25.14	New
8.35	New	15.29	New	25.15	New
10.28	New	15.30	New	26.19	New
10.29	New	22.1	New	29.1	New
10.30	New	22.2	New		

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SECTION 1

GENERAL

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Question 1.1 RETIRED**Question 1.2 REVISED**

Topic: Time-shared Analyzers

Question: If two individual probes (for example, where the probes are installed in two different ducts) share an analyzer, are they considered individual monitoring systems?

Answer: Yes. The minimum data capture requirements of § 75.10(d)(1) therefore apply to each system separately (i.e., a minimum of one cycle of operation (sampling, analyzing, and data recording) must be completed in each successive 15-minute interval, for each monitoring system).

References: § 75.10(d)

Key Words: Time-sharing

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 1.3

Topic: Acceptable Monitors

Question: Are all types of monitors, including in-situ monitors, appropriate for use in the Part 75 program?

Answer: Yes, all types of CEMS are appropriate for use in the CEM program as long as the CEMS is able to meet the design specifications, all the initial performance test requirements, and the annual, semi-annual, quarterly, and daily QA/QC requirements of Part 75.

References: § 75.10, § 75.66(l)

Key Words: Monitors, Petitions

History: First published in November 1993, Update #2

Question 1.4 **REVISED**

Topic: Use of Optical In-situ Monitoring

Question: Can I use an optical in-situ monitoring system under the Acid Rain Program? If so, how do I challenge the system with calibration gases and what procedure should I use to calculate the required gas tag values?

Answer: Yes. An optical in-situ system may be used so long as it is approved by the Acid Rain Program via issuance of a monitoring system certification. This means the system must undergo all required tests and pass. To test the instrument linearity and calibration error, EPA Protocol gases must be used. The use of a calibration cell that is placed in the measurement path is acceptable. The calibration cell must be located so as to challenge the entire measurement system. This is analogous to the injection of calibration gas to the probe tip of extractive systems.

For path measurement systems where the calibration gas materials are introduced into a cell of different optical path length than the measurement optical path length, use the following equation to calculate the calibration gas tag values needed for daily calibration error tests or linearity checks:

$$EAV = SAV \left(\frac{MPL}{CCPL} \right)$$

Where:

EAV = Equivalent Audit Value
SAV = Specified Audit Value
MPL = Measurement Path Length
CCPL = Calibration Cell Path Length

The EAV is the actual tag value of the EPA protocol gas to be injected. The SAV is the required reference gas concentration specified in Section 5.2 of Appendix B of the rule as a percentage of the calculated span value.

The design should be such that the audit calibration gas is maintained at the same temperature and pressure as the stack gas to be measured. Alternatively, the owner or operator could determine the calibration cell temperature and apply appropriate corrections to the audit measurements to represent monitor performance at actual effluent conditions, subject to the approval of the Administrator. Any such petitions must be approved by the Administrator prior to implementation of acceptable testing.

References: § 75.10

Key Words: Monitors

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 1.5 **REVISED**

Topic: Publication of Regulations with All Revisions

Question: There have been several revisions to Part 75 since the original 1993 rule. Will EPA produce a single consolidated rule incorporating all the changes?

Answer: Yes. The Office of the Federal Register and the Government Printing Office are responsible for publishing updated regulations in the *Code of Federal Regulations* (CFR). The Office of the Federal Register produces a consolidated version each year. The consolidated version generally becomes available in January or February and contains all rule revisions through July 1 of the previous calendar year. Therefore, the Office of the Federal Register version that becomes available in January or February 2000 will include the May 26, 1999 revisions to Part 75. ARD plans to release a draft consolidated version later this year. The Government Printing Office can be contacted at (202) 512-1800.

References: N/A

Key Words: N/A

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 1.6 **RETIRED**

Question 1.7 **RETIRED**

Question 1.8 **RETIRED**

Question 1.9 RETIRED**Question 1.10 RETIRED****Question 1.11**

Topic: Policy Manual/Guidance Updates

Question: Will ARD update the Policy Manual to be consistent with rule revisions? How will additional guidance be made available?

Answer: Yes. In addition to the October 1999 Revised Policy Manual and subsequent Policy Manual updates, EPA will provide additional guidance in two ways: (1) the EDR v2.1 instructions will be periodically updated; and (2) EPA will post answers on the Internet to questions received via e-mail. A special location has been established on the ARD website to post questions and answers. Go to: www.epa.gov/acidrain/so2emis.html.

Each EDR v2.1 update will be referenced by its date. The EDR v2.1 Reporting Instructions were released on May 4, 1999. The first update to the EDR v2.1 instructions was released on August 16, 1999. To help sources understand the differences between the May 4 and August 16, 1999 instructions, the August 1999 instructions include a list of the changes made. No changes are planned that will affect how the EDR is structured. The scope of the changes will be limited to the following: (1) correction of errors; (2) inclusion of additional reporting codes, as necessary; (3) expansion or re-wording of portions of the instructions, for clarity; and (4) addition of special instructions for Subpart H sources that report data only during the ozone season.

References: N/A

Key Words: Electronic data reporting

History: First published in October 1999 Revised Manual

Question 1.12

Topic: Time Table for Implementation of Rule Revisions

Question: The revisions to Part 75 that were published on May 26, 1999 became effective on June 25, 1999. Must all of the new rule provisions be implemented immediately? If not, can you provide guidance, including a time table, for implementing the new rule provisions?

Answer: EPA has identified six categories of rule provisions in the May 26, 1999 rulemaking:

- (1) Category 1: Provisions that have an effective date of June 25, 1999 that are required and must be implemented beginning on June 25, 1999.
- (2) Category 2: Provisions that have an effective date of June 25, 1999 that are optional and may be used on and after June 25 1999.
- (3) Category 3: Provisions that will be required on a date after June 25, 1999 (April 1, 2000, in most cases). These provisions may, at the discretion of the owner or operator, be used on and after June 25, 1999.
- (4) Category 4: Provisions that have an effective date of June 25, 1999, but for which EPA is extending the required implementation date in this policy beyond June 25, 1999 to allow for equipment and DAHS upgrades.
- (5) Category 5: One provision that has an effective (starting) date of January 1, 2000 and may not be used until that date.
- (6) Category 6: Provisions that were deleted or replaced with a less stringent requirement from Part 75 in the May 26, 1999 final rule revisions.

Table 1, below, summarizes the major Part 72 or 75 revisions that were promulgated on May 26, 1999. Each rule provision has been placed in one of the categories described above and guidelines are given for implementation of each provision. The category number assigned to each rule provision appears in square brackets in the first column of Table 1 (e.g., [2] stands for Category 2). Note that full implementation of several new rule provisions in Categories 1, 2, 3, and 4 requires a DAHS upgrade from EDR v1.3 to EDR v2.1. However, since you are *not allowed* to submit quarterly report data to EPA in EDR v2.1 format until the first quarter of 2000 and are *not required* to submit in EDR v2.1 format until the second quarter of 2000, interim guidance is needed to implement these provisions while EDR v1.3 is still being used (i.e., in the period from June 25, 1999 to April 1, 2000 (or January 1, 2000, if the EDR v2.1 upgrade is done in the first quarter of 2000)). Table 1 provides the

necessary interim guidelines. Note that where Table 1 indicates that you should conduct certain reporting "after the EDR v2.1 DAHS upgrade is done" (or similar phrase), you cannot use EDR v2.1 reporting prior to reporting data for the first quarter of 2000 even if your DAHS upgrade is completed prior to that time.

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 1 Provisions				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
New certification and recertification procedures [1]	6-25-99	6-25-99	§ 75.20(a), (b), and (g)	As of 6-25-99, the process for submitting and reviewing certification and recertification applications has been made uniform. There is now a 120 day review period for both types of applications. There are new (restricted) definitions of recertification events in § 75.20(b) and (g)(6). Only a recertification event requires a formal recertification application. EPA plans to implement a more efficient mechanism for receiving and processing the electronic portion of certification and recertification applications by January 1, 2000. Please continue to submit certification or recertification applications and test results in the usual way until this procedure is in place.
Determination of the upper and lower boundaries of the "range of operation" and definition of the "low," "mid," and "high" load levels [1]	6-25-99	6-25-99	Appendix A, Section 6.5.2.1	Starting 6-25-99, keep records of these determinations. When the EDR v2.1 DAHS upgrade is done, report the upper and lower boundaries of the range of operation in RT 536.
Keeping of certain on-site maintenance records and records of flow monitor polynomial coefficients, moisture monitor K-factors, etc. [1]	6-25-99	6-25-99	Appendix B, Section 1.1.3	Begin keeping a maintenance log (if one is not currently kept) as of June 25, 1999. Also record the current values of the flow and moisture monitor polynomials, K-factors, etc., and keep records of any changes to these values, beginning on June 25, 1999.
Changes to the general RATA procedures [1]	6-25-99	6-25-99	Appendix A, Sections 6.5.7 through 6.5.9	Use these provisions for all RATAs performed on or after 6-25-99. Keep appropriate records when required.

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 1 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Minimum separation of 25% of the range of operation between flow RATA audit points at adjacent load levels [1]	6-25-99	6-25-99	Appendix A, Section 6.5.2(a) and Appendix B, Section 2.3.1.3(c)(6)	Use these provisions for all flow RATAs performed on and after 6-25-99.
Data validation rules for RATAs and linearity checks [1]	6-25-99	6-25-99	Appendix B, Sections 2.2.3 and 2.3.2	Use these provisions for all RATAs and linearity checks performed on and after 6-25-99.
"Additional" calibration error test requirements following failed calibrations, corrective maintenance, and certain "routine" and "non-routine" monitor adjustments [1]	6-25-99	6-25-99	Appendix B, Section 2.1.3	Use these calibration error test provisions and the associated data validation rules on and after 6-25-99.
New fuel flowmeter quality assurance schedule under Appendix D (<i>i.e.</i> , perform accuracy testing once every four "fuel flowmeter QA operating quarters," not to exceed 20 consecutive calendar quarters) [1]	6-25-99	6-25-99	Appendix D Section 2.1.6	In determining the deadline for the next fuel flowmeter accuracy test, you may count any calendar quarter since the last accuracy test as a "non-fuel flowmeter QA operating quarter" (including quarters prior to Q2 1999), if the applicable fuel was combusted for < 168 hours in the quarter. When reporting in EDR v1.3 format, claim fuel flowmeter QA test extensions in RT 910. After the upgrade to v2.1, use RT 696 to claim accuracy test deadline extensions.
Two-load annual flow RATAs [1]	6-25-99	6-25-99	Appendix B, Section 2.3.1.3(c)(1)	On and after June 25, 1999 perform two-load annual flow RATAs, for routine QA purposes, at the two most frequently-used load levels, as defined in Section 6.5.2.1 of Appendix A (unless the unit qualifies for a single-load test). Owners and operators should perform the historical load analysis described in Section 6.5.2.1 of Appendix A, to ensure that the proper load levels are chosen for the RATA. When this provision is used prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Thereafter, indicate the number of flow RATA load levels in RT 611.

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 1 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Use of "conditionally valid" data for recertifications and diagnostic tests (<u>required</u>) and for initial certifications and routine linearity checks and RATAs (<u>optional</u>) [1]	6-25-99	6-25-99	§ 75.20(b)(3) and § 75.20(d)(2)(iii)	<p>Only data measured and recorded on and after June 25, 1999 can be considered conditionally valid data.</p> <p>If the provision is used prior to the upgrade to EDR v2.1, document this in RT 910. Also indicate in RT 910 any quarter that ends with a "conditionally valid" data status for any pollutant or parameter.</p> <p>After the upgrade to EDR v2.1, use RT 556 to document all periods of conditionally valid data.</p>
RATA deadlines are determined on the basis of "QA operating quarters," rather than calendar quarters [1]	6-25-99	6-25-99	§ 72.2 (QA operating quarter definition) Appendix B, Sections 2.3.1.1 and 2.3.1.2	<p>In determining the deadline for the next RATA of a CEMS, you may count any calendar quarter since the last RATA of the system as a "non-QA operating quarter" (including quarters prior to Q2 1999), if there are < 168 unit or stack operating hours in the quarter.</p> <p>In the time period from 6/25/99 to 4/1/00 (or 1/1/00 if the EDR v2.1 upgrade occurs in the 1st quarter of 2000), if you extend any RATA deadline(s) based on "non-QA operating quarters," indicate this in RT 910 of the electronic quarterly report. Thereafter, use RT 697 to claim RATA deadline extensions.</p>
Category 2 Provisions				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Use of the abbreviated flow-to-load ratio or GHR diagnostic test to validate flow rate data following corrective maintenance of the flow monitor or major component replacement [2]	6-25-99	Optional procedure which may be used on and after 6-25-99	Appendix B, Section 2.2.5.3	<p>This test is essentially identical to the diagnostic test procedure described in Question 13.15.</p> <p>If this provision is used prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Thereafter, report RT 556 when the diagnostic test is performed.</p>

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 2 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Conditional exemption from SO ₂ RATA testing, for units with SO ₂ monitors, if the annual usage of fuel with a sulfur content greater than "very low sulfur fuel" (as defined in § 72.2) is # 480 hours per year [2]	6-25-99	Optional procedure which may be used on and after 6-25-99	§ 75.21(a)(7)	As of June 25, 1999, you may implement this provision using fuel usage data for calendar year 1999. Keep records of the annual high-sulfur fuel usage. Prior to the EDR v2.1 upgrade, claim the SO ₂ RATA exemption by reporting the year-to-date usage of high sulfur fuel in RT 910. Thereafter, report RT 697 to claim the RATA exemption.
Cap of 1.111 on the bias adjustment factor (BAF) for low emitting sources of SO ₂ and NO _x [2]	6-25-99	Optional procedure which may be used on and after 6-25-99	Appendix A, Section 7.6.5(b)	The value of 1.111 for a BAF may be applied to data on and after June 25, 1999 to substitute for a higher BAF from a previously performed RATA at a qualifying low emitting source. The BAF value of 1.111 must be automatically applied to the unadjusted SO ₂ and NO _x data by the DAHS.
Revised alternative relative accuracy specifications for low emitting sources of SO ₂ and NO _x and for CO ₂ monitors [2]	6-25-99	Optional procedure which may be used on and after 6-25-99	Appendix B, Section 2.3.1.2 and Figure 2	If the new alternate RA specifications are used prior to the date of the EDR v2.1 upgrade, indicate this in RT 910 of the quarterly report. Thereafter, report a "1" in column 128 of EDR RT 611 to indicate that the alternative specification is used.
New options for gas RATA reference method traverse point location [2]	6-25-99	Optional procedure which may be used on and after 6-25-99	Appendix A, Section 6.5.6	Keep appropriate records as part of the test log, indicating the number and location of the RM traverse points.
Use of a stratification test to qualify for single-point gas RATA sampling or to qualify to use a "short" reference method measurement line following a wet scrubber [2]	6-25-99	Optional procedure which may be used on and after 6-25-99	Appendix A, Sections 6.5.6 through 6.5.6.3	Keep on-site records of all stratification tests performed.

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 2 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Single-load annual flow RATA testing for units that have operated at one load level (L, M, or H) for \geq 85% of the time since the last annual flow RATA [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix B, Section 2.3.1.3(c)(3)	If this provision is used prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Thereafter, report RT 695 to make a single-load flow RATA claim.
Quarterly linearity check or leak check exemption, based on infrequent operation (<i>i.e.</i> , < 168 unit or stack operating hours in the quarter) [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix B, Sections 2.2.1 and 2.2.2	The first quarter for which you may claim an exemption to a linearity check or leak check is the second quarter of 1999. If these provisions are used prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Thereafter, report RT 698 to claim quarterly linearity check or leak check exemptions.
Linearity exemption for SO ₂ and NO _x monitors with a span value of \leq 30 ppm [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix A, Section 6.2	The first quarter in which you may claim this linearity check exemption is the second quarter of 1999.
Linearity check only required on the range(s) actually used for reporting during the quarter [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix B, Section 2.2.1	The second quarter of 1999 is the first quarter you may claim a linearity exemption based on this provision. If this provision is implemented prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Thereafter, use RT 698 to claim quarterly linearity check exemptions.
"Grace periods" for RATAs, linearity checks, and leak checks, to extend the deadlines for missed QA tests [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix B, Sections 2.2.4 and 2.3.3	Grace periods may be applied to any missed QA test deadline, beginning with the second quarter, 1999 test deadline (<i>i.e.</i> , June 30, 1999). If grace periods are used prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Thereafter, report RT 699 when a grace period is used to extend a QA test deadline.

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 2 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Use of a mid-level calibration gas for daily calibration error tests [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix A, Sections 6.3.1 and 7.2.1 Appendix B, Section 2.1.1	If this provision is implemented prior to the date of the EDR v2.1 DAHS upgrade, indicate this in RT 910 of the quarterly report. Perform calibration error tests in the usual manner, replacing the letter "H" in column 71 of RT 230 with "M". This substitution may be performed manually prior to the EDR v2.1 upgrade.
Alternative calibration error specification for low-span differential pressure-type flow monitors [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix A, Section 3.1	Report the reference and measured values to 0.01 inches of H ₂ O in columns 37 and 50 of EDR record type 230. If the value of * R - A * is less than 0.05 inches H ₂ O, report the results in column 63 of RT 230 as 0.0, since the field only has one decimal place. Report a "1" in column 68 of RT 230 to indicate that the alternate performance specification is being used.
Use of "like-kind replacement" non-redundant backup analyzers [2]	6-25-99	Optional provision which may be used on and after 6-25-99	§ 75.20(d)	If like-kind replacement analyzer is used, assign it a 3-digit component ID starting with "LK" (e.g. LK1) and include it in RT 510 as a component of the primary monitoring system. Perform a linearity test when the monitor is brought into service. Report the results of the validating linearity test of the analyzer. Report all quality assured data from the analyzer under the 3-digit "LK" component ID and flag each hour of data with a MODC of "17". Manual entry of the "LK" component ID and the MODC of 17 is permitted.
Use of default high range value for SO ₂ or NO _x concentration, in lieu of maintaining a high monitor range (dual-span units, only) [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix A, Sections 2.1.1.4(f) and 2.1.2.4(e)	If you elect to implement this provision prior to the EDR v2.1 upgrade, the necessary mathematical algorithms must be automated within the DAHS. Report a MODC of "19" for hours in which the default high range value is used. The code "19" may be manually entered into RTs 200 and 201 until the deadline for the EDR v2.1 upgrade (April 1, 2000). Thereafter, the code must be generated automatically by the DAHS.

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 2 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
New Appendix D fuel sampling options [2]	6-25-99	Optional provisions which may be used on and after 6-25-99	Appendix D Section 2.2 for oil and Section 2.3 for gas	If you elect to use these new options prior to the EDR v2.1 upgrade report the sulfur content, GCV, and (if applicable) density value used to determine emissions for the hour in RTs 302, 303, 313, and 314. Use the existing code that is most appropriate to report the method of oil sampling in RT 313. Indicate in RT 910 the sampling procedures used if they are not fully supported by EDR v1.3.
Expanded use of "diluent cap" value [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix F, Sections 3.3.4, 4.1, 4.4.1, 5.2.1, 5.2.2, 5.2.3, and 5.2.4	EPA recommends that these provisions not be implemented until the EDR v2.1 upgrade is performed.
Use of optional fuel flow-to-load ratio test to extend fuel flowmeter QA test deadline [2]	6-25-99	Optional provision which may be used on and after 6-25-99	Appendix D Section 2.1.7	<p>The initial baseline flow-to-load ratio may be established using the historical data collected after the most recent fuel flowmeter accuracy test. If you elect to extend your fuel flowmeter accuracy test deadline using the fuel flow to load ratio test procedure, the test must be performed and passed for each quarter after the baseline data collection period ends, including quarter(s) prior to the second quarter of 1999.</p> <p>You may extend a fuel flowmeter accuracy test deadline starting with the second quarter of 1999.</p> <p>If the fuel flow-to-load ratio test is used prior to the deadline for the EDR v2.1 upgrade (April 1, 2000), indicate this in RT 910 of each quarterly report and summarize the test results. Thereafter, use RTs 629, 630, and 696 to report the test results and to claim extensions of the flowmeter accuracy test deadline.</p>

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 3 Provisions				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
General record keeping requirements in § 75.57 through § 75.59 [3]	6-25-99	4-01-00 or 1-01-00, depending on date of DAHS upgrade to EDR v2.1	§ 75.57 through § 75.59	<p>These recordkeeping provisions correspond to the required DAHS upgrade from EDR v1.3 to v2.1, with one exception: if any new rule option is used prior to 4/1/00, the associated records in § 75.57 through § 75.59 must be kept on-site.</p> <p>Otherwise, in the interval from 6/25/99 to 4/1/00 (or 1/1/00 if the DAHS upgrade is done in the first quarter of 2000), the general recordkeeping provisions in § 75.54 through § 75.56 remain in effect.</p>
Reporting of SO ₂ emission rates and heat input rates [3]	6-25-99	4-01-00 or 1-01-00, depending on date of DAHS upgrade to EDR v2.1	§ 75.57(b)(5) and (c)(4)	<p>Hourly reporting of SO₂ emission <u>rates</u> (lb./hr) and heat input <u>rates</u> (mmBtu/hr) is required. There was an error in § 75.54(b)(5) of the previous version of Part 75. Instead of requiring the heat input rate in mmBtu/hr, the rule had erroneously required total heat input in mmBtu. Also, there were misstatements in § 75.54(c)(3). The requirement to report SO₂ emissions in lb/hr was described as mass emissions of SO₂ rather than as an emission rate. Both of these errors have been corrected in the May 26, 1999 final rule.</p>
Quarterly stack flow-to-load ratio or gross heat rate test [3]	6-25-99	Second quarter in 2000	Appendix A, Sections 7.7 and 7.8 Appendix B, Section 2.2.5	<p>EPA encourages sources to begin performing the flow-to-load ratio test before the second quarter of 2000.</p> <p>Prior to upgrading your DAHS to EDR v2.1 format report flow-to-load ratio test results (pass/fail) in RT 910. Thereafter, report the test results in RT 605 and RT 606.</p>
Electronic submittal of quarterly reports [3]	6-25-99	First quarter in 2001	§ 75.64(f)	<p>Electronic submittal of quarterly reports is currently allowed and is the recommended method of submitting data. Beginning on January 1, 2001, submittal through an electronic modem or other approved method is required.</p>

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 3 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Determination of the normal load level(s) and the two most frequently-used load levels [3]	6-25-99	Second quarter in 2000	Appendix A, Sections 6.5.2.1 and 7.6.5 Appendix B, Section 2.3.1.3	EPA recommends that these determinations be made as soon as possible after June 25, 1999, in order to ensure that, in the interim period from 6/25/99 to 4/1/00: (1) gas monitor RATAs are done at the "normal" load level, in accordance with Section 6.5.2.1 of Appendix A and Section 2.3.1.3 of Appendix B; (2) 2-load annual flow RATAs are done at the two most frequently-used load levels, in accordance with Section 6.5.2.1 of Appendix A and Section 2.3.1.3 of Appendix B; and (3) the bias adjustment factors for multi-load flow RATAs are determined in accordance with revised Section 7.6.5 of Appendix A. If the load level determinations are made prior to the EDR v2.1 upgrade, keep the required records of the historical data analysis and report the results of the data analysis in RT 910. Thereafter, report this information in RT 536.
Annual span/range evaluation [3]	6-25-99	12-31-99	Appendix A, Sections 2.1.1.5, 2.1.2.5, 2.1.3.3, and 2.1.4.3	Perform the annual span and range evaluation required by these provisions no later than 12-31-99 for the 1999 calendar year and at least once in each subsequent year.

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 4 Provisions				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
New monitoring plan updating procedures [4]	6-25-99	1-01-00	§ 75.53(b), (e), and (f)	<p>§ 75.53(b) requires monitoring plans to be updated whenever changes are made to a monitoring system that affect the information in the monitoring plan. EPA is moving toward an all-electronic process for updating monitor plans. At the present time, the Agency is able to receive electronic monitor plan updates in the quarterly report submittals, but not at other times.</p> <p>EPA projects that by January 1, 2000, a mechanism will be in place for receiving electronic monitor plan updates at all times. Until then, sources should continue to provide hardcopy monitor plan updates to the States and Regions and submit updated monitoring plan data in each quarterly report, as has been done in the past.</p>
Use of EPA protocol calibration gases that conform to the September, 1997 protocol document, for daily calibrations, linearity checks and reference method testing [4]	6-25-99	8-25-99	Appendix A, Section 5.1	<p>As of June 25, 1999, the results of an EPA inquiry showed that all major calibration gas suppliers were either using the 1997 protocol or would be using it within a few weeks of the effective date of the rule.</p> <p>Therefore, calibration gases received or ordered prior to August 25, 1999 may be used until their expiration date. All gas cylinders ordered on and after August 25, 1999 must meet the new protocol.</p>
Use of maximum potential concentration of SO ₂ , maximum potential flow rate, or maximum NO _x emission rate when percent monitor data availability (PMA) is < 80.0% [4]	6-25-99	4-01-00	§ 75.33	<p>Implementation of this provision is not required until the deadline for upgrading to EDR v2.1 (April 1, 2000).</p> <p>Use of this provision prior to the required EDR v2.1 upgrade is allowed if the change is incorporated into the DAHS in an automated fashion and the proper MODC code of 12 is used in RTs 200, 220, and 320. Manual entry of the MODC code is permitted.</p>
Reporting of 200% of the range for a full-scale exceedance of the high range of an SO ₂ analyzer, NO _x analyzer or flow monitor [4]	6-25-99	4-01-00	Appendix A, Sections 2.1.1.5, 2.1.2.5, and 2.1.4.3	<p>Implementation of the provision is not required until the deadline for upgrading to EDR v2.1 (April 1 2000).</p> <p>Use of this provision prior to the required EDR v2.1 upgrade is allowed if the change is incorporated into the DAHS in an automated fashion and if the proper MODC code of 20 is used. Manual entry of the MODC is permitted.</p>

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 4 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting Date First Allowed
CO ₂ and heat input rate missing data procedures [4]	6-25-99	4-01-00	§ 75.35 and § 75.36	<p>Use of the new mathematical algorithms for CO₂ and heat input rate missing data is required beginning on April 1, 2000 for units that use CEMS for CO₂ and heat input rate.</p> <p>Although the rule allows use of the algorithms prior to April 1, 2000, EPA advises that they <u>not</u> be used until the EDR v2.1 upgrade has been done and the missing data routines can be automatically implemented by the DAHS.</p>
Quality assurance of moisture data and moisture missing data routines [4]	6-25-99	4-01-00	§ 75.11(b), § 75.12(b), § 75.37, § 75.4(i), and § 75.20(c)(5) through (c)(7)	<p>This requirement applies only to units for which moisture corrections are required to properly calculate emissions or heat input rate. Incorporate the selected moisture methodology and program the missing data routines into the DAHS by the deadline for the EDR v2.1 upgrade (April 1, 2000). The new moisture provisions are not adequately supported by EDR v1.3; therefore, EPA recommends that you not implement these provisions until the DAHS is upgraded to EDR v2.1.</p> <p>Sources that have historically accounted for moisture and reported percent moisture in RT 220 of EDR v1.3 should continue to do so until the EDR v2.1 upgrade is performed.</p> <p>Beginning on April 1, 2000, report moisture data in RT 212 or, if a default percent moisture value is used, report the value in RT 531.</p>
Use of special component type code for dual range analyzer with a single component ID [4]	6-25-99	4-01-00	Appendix A, Sections 2.1.1.4(d) and 2.1.2.4(c)	<p>Continue to report a component type code of SO₂ or NO_x in column 23 of RT 510, until April 1, 2000 or January 1, 2000, depending on the date of the DAHS upgrade to EDR v2.1. You must use the new "special" component type code SO₂A or NO_xA when you upgrade to EDR v2.1 format.</p>

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 4 Provisions (cont.)				
Part 75 or 72 Rule Provision and [Category]	Effective Date or	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting Date First Allowed
Revised definition of pipeline natural gas and natural gas [4]	6-25-99	4-01-99	§ 72.2 Definitions and Appendix D, Sections 2.3.1, 2.3.2, and 2.3.3	<p>The revised definitions of "Pipeline natural gas" (PNG) and "Natural gas" (NG) in § 72.2 must be used when you begin reporting in EDR v2.1 format. (Either April 1, 2000 or January 1, 2000 if the EDR v2.1 upgrade is done at that time). Prior to the EDR v2.1 upgrade, continue monitoring and reporting data in the previously accepted manner.</p> <p>The Agency will be issuing guidance on the use of the revised definitions of pipeline natural gas and natural gas in the near future. Please consult this guidance to assist you in determining whether the fuel that you combust qualifies as pipeline natural gas or natural gas.</p>
Category 5 Provisions				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Low mass emissions (lme) unit excepted methodology [5]	11-26-98 (original) and 6-25-99 (revised)	Optional provisions that may not be used until 1-01-00	§ 75.19	<p>The LME methodology was originally promulgated on October 27, 1998. Use of this methodology is optional but must begin at the start of a calendar year and may not be used until January 1, 2000. See § 75.53(f)(5) and § 75.19(a) for LME monitoring plan and application requirements.</p> <p>The use of the LME provisions requires the submission of an EDR in v2.1 format. You may not report data for a LME unit using EDR v1.3. Therefore, if you elect to report as an LME unit in 2000, EDR v2.1 reporting format must be used, starting on January 1, 2000.</p>

(cont.)

**Table 1: Summary of May 26, 1999 Revisions to 40 CFR Parts 72 and 75
With Implementation Guidelines**

Category 6 Provisions				
Part 75 or 72 Rule Provision and [Category]	Effective Date or Date First Allowed	Date or Quarter Required	Key Rule Citation(s)	Guidelines for Implementation and Reporting
Requirement for a 4 month waiting time between successive RATAs removed from rule [6]	6-25-99	NA	Removed from Appendix B, Section 2.3.1	Successive RATAs performed on and after June 25, 1999 may be separated by fewer than 4 months.
Requirement for a 2 month waiting time between successive linearity checks removed from rule [6]	6-25-99	NA	Appendix B section 2.2.1	On and after June 25, 1999, the minimum waiting time between successive linearity tests has been reduced to 30 days, "to the extent practicable."
Quarterly reports for "deferred" Acid Rain units (i.e., existing affected units that were shut down on the applicable compliance deadline in § 75.4(d), and have never operated since) need not be submitted until the unit re-commences commercial operation [6]	6-25-99	NA	§ 75.64(a)	Owners and operators should discontinue the submittal of abbreviated EDR reports for deferred units, starting with the second calendar quarter of 1999.
Restriction to two RATA attempts to obtain an annual frequency or favorable BAF removed from rule [6]	6-25-99	NA	Appendix B Section 2.3.1.4	On and after June 25, 1999, you may perform as many RATAs as are deemed necessary to obtain an annual RATA frequency or a more favorable BAF.
Requirement to perform annual concurrent flow and SO ₂ RATAs removed from rule [6]	6-25-99	NA	Removed from Appendix A, Section 6.5	As of June 25, 1999, SO ₂ and flow RATAs need not be performed concurrently at normal load.
Submittal of reasons for missing data in RT 550 [6]	6-25-99	NA	§ 75.54(g) and § 75.57(h)	Beginning with the quarterly report for the third quarter of 1999, submission of this record type is optional.
Requirement to maintain an on-site spare parts inventory removed from rule [6]	6-25-99	NA	Removed from Appendix B Section 1.3	Maintenance of an on-site spare parts inventory is no longer required, as of June 25, 1999.

References: N/A

Key Words: Electronic data reporting, Electronic report formats, Reporting

History: First published in October 1999 Revised Manual

Question 1.13

Topic: Policy Manual Updates

Question: Are past Policy Manual updates still valid?

Answer: Yes, but only if the particular question is in the Revised Policy Manual (dated October 14, 1999). The Revised Policy Manual includes all old questions (including those distributed through updates) that are still valid for policy purposes. Most questions have been revised, so you should reread the answers and make certain the substance is unchanged.

References: N/A

Key Words: N/A

History: First published in March 2000, Update #12

Question 1.14

Topic: Audit Checklist

Question: Is EPA planning on revising the Level 2 audit checklist which is included in the Acid Rain CEMS Field Audit Manual and used when conducting field audits?

Answer: Not at this time. For items that are not applicable following the Part 75 revisions, you may just put "N/A" on the form. You should make sure you are using the latest version of the form, available from the web site. You may also alter the format if you choose.

References: N/A

Key Words: N/A

History: First published in March 2000, Update #12

Question 1.15

Topic:	PEMS
Question:	Is EPA considering allowing the use of PEMS?
Answer:	EPA is conducting a PEMS study. The Agency has done some preliminary background work, but extensive field tests are needed to determine whether PEMS should be allowed to be used under the Acid Rain Program or Subpart H.
References:	N/A
Key Words:	Predictive emissions monitoring systems
History:	First published in March 2000, Update #12

Question 1.16

Topic:	Exemptions From Part 60 Requirements
Question:	My facility is subject to continuous monitoring requirements under both 40 CFR Part 60 and 40 CFR Part 75. The May 26, 1999 revisions to Part 75 allow us to claim an exemption from linearity testing of our gas monitors for quarters in which the unit operates for fewer than 168 hours. May I obtain a similar exemption from the Part 60, Appendix F quality assurance provisions for quarterly cylinder gas audits (which are similar to Part 75 linearity checks) for quarters in which the unit operates for fewer than 168 hours?
Answer:	You may only obtain an exemption from the Part 60 cylinder gas audit (CGA) requirement if the permitting authority allows it. When a source is regulated under different programs with similar rule provisions (in this case, linearity checks and cylinder gas audits), the facility must comply with each of these rule provisions separately, unless the regulatory agency allows exceptions to this. Therefore, unless the permitting authority in the region or state stipulates otherwise, you would have to follow the procedures of Part 60, Appendix F, which require quarterly cylinder gas audits, even for quarters in which the unit operates for fewer than 168 hours.
References:	40 CFR Part 60, Appendix F; 40 CFR Part 75, Appendix B, Section 2.2.3(f)

Key Words: Quality assurance

History: First published in March 2000, Update #12

Question 1.17

Topic: Rule Revisions and OTC NBP Sources

Question: My source is an OTC NO_x Budget Program (NBP) source and is not subject to the Acid Rain Program. Can we take advantage of some of the new Part 75 rule revisions that were promulgated on May 26, 1999?

Answer: You may only use the new Part 75 rule provisions if :

- (1) Your State permits use of the revised rule; and
- (2) The EDR version in which you report data (i.e., v.2.0 or v.2.1) is consistent with the new Part 75 provision(s) that you intend to use.

The best way to ensure that condition (2) above is met is to fully implement the NO_x mass emissions provisions of Subpart H of Part 75 (see §§ 75.70 through 75.75). Note that if you choose this option, you may no longer use any monitoring or reporting option allowed by the January, 1997 NO_x Budget Program Guidance, if the option is not allowed under Part 75. You must also upgrade your DAHS software from EDR v2.0 to EDR v2.1.

If you want to implement some, but not all, of the new Part 75 provisions and wish to continue reporting in EDR v2.0, you must petition your State for permission to do so. EPA advises States to use discretion in granting such petitions. As a general guideline, petitions are considered approvable if the rule provisions that the source is requesting permission to use are consistent with EDR v2.0 reporting. However, if implementation of the new rule provisions requires any of the new record types or new data fields associated with EDR v2.1, the State should carefully assess the potential impact of not receiving the extra information that EDR v2.1 would provide. If the State considers the impact of not receiving that information to be minimal, or if the State and the facility can agree upon an alternative way of documenting compliance with the new rule provisions (e.g., use of EDR RT 910, the electronic cover letter), then the petition may be approved.

Note that regardless of whether the State approves any such petitions, NO_x Budget sources must report all required data in a single EDR version. You may not report in a

format consisting of EDR v2.0 with a few v2.1 records added on, nor may you report in EDR v2.1 with a few v2.0 records added on.

The Clean Air Markets Division will issue written guidance to the States to assist them in evaluating the types of petitions described in the previous paragraphs. Until that guidance is finalized, States receiving such petitions should make case-by-case determinations and should contact EPA if any questions or issues arise.

References:

N/A

Key Words:

Applicability

History:

First published in March 2000, Update #12

SECTION 2

SO₂ MONITORING

		<u>Page</u>
2.1	MOVED	See Question 23.1
2.2	RETIRED	
2.3	RETIRED	
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2.5	RETIRED	
2.6	REVISED	SO ₂ Monitoring for Gas-only Hours 2-1
2.7	MOVED	See Question 25.1
2.8	MOVED	See Question 25.2
2.9	MOVED	See Question 25.3
2.10	MOVED	See Question 25.4
2.11	MOVED	See Question 25.5
2.12	MOVED	See Question 25.6
2.13	RETIRED	
2.14	RETIRED	

2.15 **RETIRED**

2.16 Use of Default SO₂ Value 2-4

Question 2.1 RENUMBERED AS QUESTION 23.1**Question 2.2 RETIRED****Question 2.3 RETIRED****Question 2.4 RETIRED****Question 2.5 RETIRED****Question 2.6 REVISED**

Topic: SO₂ Monitoring for Gas-only Hours

Question: If I have an oil or coal unit with an SO₂ CEMS that occasionally burns solely natural gas, may I use a different monitoring approach for SO₂ for hours when I burn only natural gas or may I continue to use an SO₂ CEMS?

Answer: If you are using a CEMS as your monitoring approach for SO₂, you may continue to use an SO₂ CEMS or you may use another method for determining SO₂ emissions for periods when you are only burning natural gas. The three methods that § 75.11(e) allows are:

- (1) Under § 75.11(e)(2), you may certify a gas fuel flow meter and use the procedures in Appendix D to perform fuel sampling and analysis (see Section 2.3 of Appendix D). This option is available for either pipeline natural gas or other gaseous fuels.
- (2) Under § 75.11(e)(1), you may determine heat input rate using a CO₂ or O₂ monitor and a flow monitor, then use a default SO₂ emission rate from Section 2.3.1.1 or Section 2.3.2.1.1 of Appendix D to convert to SO₂ emissions (see Section 7 of Appendix F). (Note that under this option, heat input rate may not be determined by gas sampling and analysis according to Section 5.5 of Appendix F.)

This option is available only for fuels that qualify as either pipeline natural gas or natural gas (as defined in § 72.2).

To report heat input data using a CO₂ or O₂ monitor and a flow monitor, it is not necessary to define and certify a separate system to calculate heat input. The flow system and CO₂ system must be certified under Part 75 before using the flow or CO₂ data.

To report SO₂ data for pipeline natural gas or natural gas for these hours, report the SO₂ mass emissions in RT 310. Leave blank the value for unadjusted SO₂ mass emissions. The formula you should use to determine SO₂ emissions is Equation F-23 from Appendix F, Section 7:

$$E_h = ER \times HI$$

Where:

- E_h = Hourly SO₂ mass emission rate, lb/hr.
 ER = Default SO₂ emission rate, either 0.0006 for pipeline natural gas or calculated using Equation D-1h, for "natural gas."
 HI = Hourly heat input rate (using bias-adjusted flow rate), mmBtu/hr.

This formula should be included in RT 520 of your monitoring plan, and identified as "F-23" in the formula code column.

For any hour in which this formula is used to calculate SO₂ mass emissions, do not report a RT 200. However, you must provide sufficient hourly data to support the heat input rate determination (i.e., report the stack gas flow rate in RT 220 and the diluent gas concentration, either in RTs 202 and 210 (if CO₂ concentration is used to calculate heat input rate) or in RT 211 (if heat input rate is calculated using O₂ concentration).

- (3) Under § 75.11(e)(3) you may use the SO₂ monitor during the combustion of gaseous fuel. However, you must report a default value of 2.0 ppm SO₂ whenever very low sulfur gaseous fuel (as defined in § 72.2) is combusted and the bias-adjusted SO₂ hourly average value recorded by the CEMS is less than 2.0 ppm.

Periods when only gaseous fuel is burned are not used to determine the monitor data availability for SO₂ when using either method (1) or (2) described above. In addition, the standard SO₂ missing data procedures are used if the SO₂ CEMS will be used to report data. The standard missing data procedures are not used in periods when only gaseous fuel is being combusted when using either method (1) or (2) described above. Rather, if you are using a fuel flow meter to determine SO₂ emissions, use the missing data procedures outlined in Appendix D. If you

are determining heat input rate by using a flow monitor and a CO₂ or O₂ monitor, use the specific missing data procedures for those parameters.

References: § 75.11(e), § 75.64; Appendix D, Section 2.3; Appendix F, Section 7

Key Words: Electronic reporting formats, Reporting, SO₂ monitoring

History: First published in March 1995, Update #5; revised July 1995, Update #6; revised March 1996, Update #8; revised in October 1999 Revised Manual

Question 2.7 **RENUMBERED AS QUESTION 25.1**

Question 2.8 **RENUMBERED AS QUESTION 25.2**

Question 2.9 **RENUMBERED AS QUESTION 25.3**

Question 2.10 **RENUMBERED AS QUESTION 25.4**

Question 2.11 **RENUMBERED AS QUESTION 25.5**

Question 2.12 **RENUMBERED AS QUESTION 25.6**

Question 2.13 **RETIRED**

Question 2.14 **RETIRED**

Question 2.15 RETIRED**Question 2.16 REVISED**

Topic: Use of Default SO₂ Value

Question: I have a coal-fired unit with certified SO₂ and flow monitoring systems. The unit occasionally fires gaseous fuel. According to § 75.11(e)(3)(iii), the DAHS must automatically substitute a 2.0 ppm default for hours when: (a) the unit is combusting gaseous fuel that meets the definition of "very low sulfur fuel" in § 72.2; and (b) the measured SO₂ concentration reading is less than 2.0 ppm. Does EPA require me to demonstrate that my gaseous fuel qualifies as very low sulfur fuel before I use the 2.0 ppm default value?

Answer: No demonstration is required. The definition of very low sulfur fuel in § 72.2 includes the following: "pipeline natural gas" (as defined in § 72.2), "natural gas" (as defined in § 72.2), and any other gaseous fuel which has 20 grains or less of total sulfur. If, based on a knowledge of the composition of the gaseous fuel being combusted (e.g., from contract specifications or historical fuel sampling information), you believe the fuel qualifies as very low sulfur fuel, report the 2.0 ppm default SO₂ concentration for gas-fired hours when the bias-adjusted SO₂ concentration is less than 2.0 ppm.

References: § 72.2, § 75.11(e)(3)(iii)

Key Words: SO₂ monitoring, Reporting

History: First published in March 2000, Update #12

SECTION 3

FLOW MONITORING

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Question 3.1 RETIRED**Question 3.2 REVISED**

Topic: Applicability

Question: Is a flue gas volumetric flow monitor required on a gas-fired or oil-fired unit?

Answer: A gas-fired unit or oil-fired unit subject to the Acid Rain Program does not need a flue gas volumetric flow monitor if the owner or operator reports SO₂ mass emissions using the procedures specified in Appendix D or uses the low mass emissions (LME) methodology in § 75.19. Gas-fired and oil-fired units subject to Subpart H also have options for monitoring NO_x mass that do not require flow CEMS. These are outlined in § 75.71.

References: § 75.11(d)(2), § 75.19, § 75.71; Appendix D

Key Words: Excepted methods, Flow monitoring

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 3.3

Topic: Requirements for Dual Flow (X-Pattern Flow) Monitoring Systems

Question: A number of sources have installed two sets of flow monitors in a single stack and are reporting the average flow value as the unit flow on an hourly basis. This includes systems using x-pattern ultrasonic monitors, as well as systems using two differential pressure monitors.

How should these sources represent these monitors in the monitoring plan? How should they report flow data and calibration records?

Answer: In the monitoring plan, identify each separate flow monitor as a component in the primary flow system. If each monitor alone will be used as a redundant backup flow system, also define each redundant backup system containing a single flow monitor.

For example, a utility may install flow monitors Component 00A and Component 00B on a single stack. The average flow value of Component 00A and 00B is identified with primary System P01. Component 00A is also a component of redundant backup System B01, and Component 00B is a component of redundant backup System B02.

When the primary system is used to report data, report one set of calibration and interference records for each flow monitor component of the primary system. Report the average hourly flow value in RT 220 using only the system ID. Leave the component ID blank. EPA will recognize the blank component ID as an indication that the system contains more than one flow monitor component and will evaluate the monitoring plan data for the multiple components and the calibration and interference check data for appropriate multiple QA records.

For certification purposes and ongoing quality assurance, compare the reference method results to the DAHS read out for each single flow monitor and the primary flow system comprised of the average of its two components. Report three sets of RATA and bias test data and results: one for system P01 (the average of components 00A and 00B), one for system B01, and one for system B02.

Conduct a 7-day calibration error test on each single flow monitor component. You must report the 7-day calibration error test data and results once for each backup system and again for each flow monitor component of the primary system. For example, you would report the 7-day calibration error test data and results for each flow monitor component of the primary system: 00A-P01, 00B-P01, and again for each of the two backup systems: 00A-B01, and 00B-B02. The flow quarterly leak check results would be handled in the same manner as the 7-day calibration error test.

On any particular day for which data is reported from a backup flow system, you must report the daily calibration error and interference check using the backup component ID and system ID. If both primary and backup flow systems are used in the same day, calibration error and interference check data and results should be reported once for each flow monitor component of the primary system (00A-P01 and 00B-P01) and again for the component of the backup system used (e.g., 00A-B01).

References: Appendix A

Key Words: Flow monitoring, Monitoring plan, Reporting

History: First published in March 1995, Update #5

Question 3.4 **REVISED**

- Topic:** Length of Reference Method 2 Test Runs
- Question:** Must a Method 2 flow run be 30 to 60 minutes long?
- Answer:** No. Method 2 only requires a run to be long enough to obtain a stable reading at each traverse point. The EPA recommends that flow run times be consistent with the run time for a gas RATA run (21 minutes). Flow runs shorter than 21 minutes are acceptable, but runs must be at least 5 minutes long.
- References:** 40 CFR Part 60, Appendix A (RM 2); 40 CFR Part 75, Appendix A, Section 6.5.7
- Key Words:** Flow monitoring, Reference methods
- History:** First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 3.5

- Topic:** Flow Monitor Interference Check
- Question:** Must quarterly reports include daily interference check results for stack gas flow monitors, regardless of type of flow monitor?
- Answer:** Yes. Part 75, Appendix A, Section 2.2.2.2 details the interference check requirements for three types of flow monitors. The EPA has received questions specifically asking whether ultrasonic flow monitors must perform the interference check. For ultrasonic flow monitors, as well as thermal and differential pressure flow monitors, you must perform the daily interference check. For example, for an ultrasonic flow monitoring system you would record a daily (or more frequent) interference check pass in RT 231 based on a sensor that indicates that the transducer purge air is working correctly. Conversely, a fail would be recorded in the event that the transducer purge air is not working correctly.
- References:** Appendix A, Section 2.2.2.2
- Key Words:** Flow monitoring, QA/QC, Reporting
- History:** First published in July 1995, Update #6

Question 3.6 **REVISED**

Topic: Accuracy of Flow Monitoring and Reference Methods

Question: Are the SO₂ emissions data reported under the Acid Rain Program high due to inaccuracy in the reference method for volumetric flow (EPA Test Method 2)? If it is uncertain, what is EPA doing to resolve the issue?

Answer: The evidence amassed to date does not indicate a clearly consistent pattern. Claims of overestimation are counterbalanced by evidence of little or no overestimation. The results appear to be highly dependent on site-specific flow patterns, particularly whether the emission flow is axial, going straight out the stack, or off-axial (i.e., swirling out the stack).

In addition, many of the claims appear to be based on a comparison between flow rates derived from fuel factors and fuel sampling-based heat input and flow rates derived from continuous emission monitoring systems (CEMS) as required by Part 75. Concluding that SO₂ measurements are incorrect because the monitored flow rates are higher than the fuel-factor-derived flow rates is questionable.

The frequency of measurement (hourly) and quality assurance (daily) is generally much higher with the Acid Rain certified CEMS than with fuel sampling. Estimating flow over short periods of time from fuel factors and heat input also depends on a high degree of consistency in the fuel supply, which is rarely the case at coal-fired boilers.

In response to the concerns of the regulated community and because of the importance of accurate emission measurements for environmental protection, and for the effective operation of the SO₂ allowance market, EPA developed three new test methods (Reference Methods 2F, 2G, and 2H) for measuring volumetric flow. These new test methods were published in the Federal Register and became effective on July 13, 1999.

Method 2F measures the axial velocity, taking into account both the yaw and pitch angles, using a 3-dimensional probe, such as a prism-shaped, five-hole probe (commonly called a DA or DAT probe) or a five-hole spherical probe.

Method 2G is a variant of existing Method 2, which uses a Type S pitot tube or a 3-dimensional probe to determine the flue gas velocity in a stack or duct, taking into account the yaw angle of flow. Method 2G does not account for the pitch angle of flow.

In a stack or duct with flowing gas, the gas velocity will approach zero near the stack or duct wall. Method 2H can be used in conjunction with existing Method 2 or new

Methods 2F or 2G to account for this velocity drop-off when determining volumetric flow rate.

Questions 3.13 through 3.23 in this manual provide implementation guidelines for the new flow methods. If additional questions arise concerning these new methods, EPA will add further questions and answers to Section 3, as appropriate.

References: 40 CFR Part 60, Appendix A (RMs 2, 2F, 2G, and 2H)

Key Words: Flow monitoring, Reference methods

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 3.7 **REVISED**

Topic: Accuracy of Flow Monitoring and Reference Methods

Question: Will adjustments be made to my reported SO₂ emissions from previous years once the three new flow test methods are effective?

Answer: No. The Acid Rain regulations require relative accuracy test audits (RATAs) to be performed using the appropriate test method that is in effect at the time of RATA testing. Prior to July 13, 1999, Method 2 was the specified reference method for flow rate RATAs. However, on May 14, 1999, three new test methods for measuring volumetric flow rate (Methods 2F, 2G, and 2H) were published in the Federal Register and became effective on July 13, 1999. On and after the effective date, these new test methods may be used to re-characterize flow monitors and to perform flow RATAs. Retroactive adjustment of SO₂ emission data reported prior to that date will not be allowed, however. Implementation guidelines for the new flow methods are given in Questions 3.13 through 3.23, below.

References: 40 CFR Part 60, Appendix A (RMs 2, 2F, 2G, and 2H)

Key Words: Flow monitoring, Reference methods

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 3.8 **REVISED**

Topic: Interference Checks when Unit is Operating

Question: Must interference checks be performed when the unit is operating?

Answer: Yes. Appendix A, Section 2.2.2.2 requires a utility to demonstrate non-interference from moisture, and to perform a daily test to detect pluggage and/or malfunction of each resistance temperature device (RTD), transceiver or equivalent. Flow monitors commonly employ a purge across the transceiver or out the sampling ports or periodic heating of RTDs to meet the above requirements. Because all of these are active measures utilizing mechanical/electrical devices, they may be susceptible to changes in temperature and pressure observed during unit operation. Therefore, the interference check should be performed during unit operation.

References: Appendix A, Section 2.2.2.2; Appendix B, Section 2.1.2

Key Words: Flow monitoring, QA/QC, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 3.9

Topic: Interference Checks on Differential Pressure Flow Monitors

Question: Must interference checks performed on differential pressure flow monitors be capable of detecting pluggage during a purge?

Answer: Part 75, Appendix A, Section 2.2.2.2 states in part: "Design and equip each flow monitor with a means to detect, on at least a daily basis, pluggage of each sample line and sensing port. . . ." Because differential pressure flow monitor purge cycles are generally performed at least daily, performing the interference check during the purge may make sense. Regardless of whether the interference check is performed during a purge, the interference check must be performed so that any pluggage is detected and reported at least daily. In practice, this means that if no pluggage of any sample line or sensing port is present, a passed interference check would be reported; if pluggage is present, a failed interference check would be reported. Also, please refer to Question 3.5.

References: Appendix A, Section 2.2.2.2

Key Words: Flow monitoring, QA/QC, Reporting

History: First published in November 1995, Update #7

Question 3.10

Topic: Moisture Content Determination

Question: My pollutant concentration is measured on a dry basis and the flow rate is measured on a wet basis. Can I use the wet bulb-dry bulb technique to determine the moisture content of the stack gases?

Answer: It depends upon the use of the moisture data. The wet bulb-dry bulb technique may not be used when converting dry pollutant concentration to a wet basis for the calculation of pollutant emission rate. Either Reference Method 4 in Appendix A of 40 CFR Part 60 or the approximation method described in Section 3 of Method 4 (midget impinger technique) must be used to convert gas concentrations from a dry to wet basis. A 1978 EPA field study has demonstrated that the midget impinger technique is capable of giving results within 1% H₂O of the reference method (see Reference 2 in the Bibliography of Reference Method 6A).

Method 4 allows the use of other approximation methods, such as the wet bulb-dry bulb technique to provide estimates of percent moisture to aid in setting isokinetic sampling rates prior to a pollutant emission measurement run. For the Acid Rain Program, you may use the wet bulb-dry bulb technique when determining the molecular weight of the stack gas for the purpose of calculating the stack gas volumetric flow rate.

References: 40 CFR Part 60, Appendix A (RM 4)

Key Words: Flow monitoring, Reference methods

History: First published in March 1996, Update #8

Question 3.11 RENUMBERED AS QUESTION 25.7

Question 3.12

- Topic:** Re-linearization of Flow Monitor During Pre-RATA Testing
- Question:** If a flow monitor is re-characterized or re-linearized during pre-RATA testing, do we need to use missing data for flow between the time the flow monitor was re-characterized and the time it passes the RATA?
- Answer:** Not necessarily. According to Section 2.3.2(b)(3) of Appendix B, you have two data validation options following a major adjustment or re-linearization of a flow monitor: (1) invalidate all data from the monitor from the hour of the re-linearization of the instrument until a subsequent hands-off RATA is passed; or (2) invalidate data from the monitor from the hour of the re-linearization of the instrument until a subsequent probationary calibration error test is passed and then use the conditional data validation procedures of § 75.20(b)(3). When the second option is chosen, if the subsequent RATA is passed hands-off, data from the monitor are considered quality-assured, back to the time of completion of the probationary calibration error test.
- References:** § 75.20(b)(3); Appendix B, Section 2.3.2(b)(3)
- Key Words:** Flow monitoring, Diagnostic testing, RATAs
- History:** First published in October 1999 Revised Manual

Question 3.13

- Topic:** Test Methods 2F, 2G, and 2H -- Application
- Question:** Once new Test Methods 2F, 2G, and 2H become effective on July 13, 1999, how do I implement them? In particular, what adjustments can be made to the flow monitor in preparation for performing a RATA using Methods 2F, 2G, and 2H?
- Answer:** The recommended procedures for implementing the new flow rate methods are as follows:
- (1) First, decide which flow reference method or combination of methods will be implemented (e.g., Methods 2 and 2H with a default wall adjustment factor (WAF), Methods 2F and 2H with a calculated WAF, etc.).
 - (2) Second, perform whatever diagnostic testing and wall effects measurements are necessary to establish new parameter values or to adjust existing parameter values

that will be programmed into the flow monitor to make the monitor readings agree with the selected reference method(s). (This process is analogous to the set-up or characterization of the flow monitor that was done prior to initial certification, to make the monitor readings agree with Method 2.) If Method 2F or 2G is selected as a reference method, establish the new parameter values or parameter value adjustments at three load levels (low, mid, and high). If Method 2H will be used to obtain calculated WAFs, characterize separate WAFs at each of the three load levels. If Method 2H is used with a default WAF, no wall effects measurements are needed. In that case, apply a constant parameter adjustment of either 0.5% or 1.0% (as appropriate to the type of stack) at each load level.

- (3) Third, incorporate the new parameter values or parameter value adjustments, determined in the second step, above, into the flow monitor and then perform a follow-up 3-load RATA using the selected reference method(s). For the follow-up RATA, use the data validation procedures in Section 2.3.2 of Appendix B (note especially paragraph (b)(3)).

(Note: The procedures described above are recommended, not required, because EPA recognizes that there may be situations in which the owner or operator desires to use the new flow rate methods for reference method testing without making any adjustments to the polynomial coefficients or K-factor(s) of the flow monitor. For example, if a particular flow monitor installed on a brick stack was originally characterized or set up using regular Method 2, and if the monitor has a 1% bias adjustment factor (BAF) with respect to Method 2, the owner or operator may elect to perform the next RATA of the flow monitor cold (*i.e.*, without changing any coefficients or K-factors) and to use a combination of regular Method 2 and Method 2H (using the 1% default wall effects adjustment factor allowed under Method 2H) to try to eliminate the BAF.

References: 40 CFR Part 60, Appendix A (RMs 2, 2F, 2G, and 2H); 40 CFR Part 75, Appendix B, Sections 2.3.2(b)(2) and 2.3.2(b)(3)

Key Words: Certification, Diagnostic testing, Flow monitoring, Recertification, Relative accuracy

History: First published in October 1999 Revised Manual

Question 3.14

Topic: Test Method 2H -- Applying the Default Wall Effects Adjustment Factor (WAF)

Question: Once new Test Method 2H becomes effective on July 13, 1999, can I apply the default WAF to values reported by my flow monitor beginning on that date?

- Answer:** A default or calculated WAF may be applied to the values obtained in the first RATA performed on or after the effective date of Test Method 2H (July 13, 1999). The WAF is applied only to the reference method value obtained by Method 2, 2F, or 2G in this RATA, not to the values reported by the flow monitor. However, immediately before performing this RATA, new parameter values or parameter value adjustments may be programmed into the flow monitor to make the flow monitor readings agree with the selected reference method(s). See Question 3.13 for a more detailed discussion of these adjustments.
- References:** 40 CFR Part 60, Appendix A (RM 2H); 40 CFR Part 75, Appendix B, Sections 2.3.2(b)(2) and 2.3.2(b)(3)
- Key Words:** Certification, Diagnostic testing, Flow monitoring, Recertification, Relative accuracy
- History:** First published in October 1999 Revised Manual

Question 3.15

- Topic:** Test Method 2H -- Minimum Acceptable Calculated Wall Effects Adjustment Factor (WAF)
- Question:** If I calculate the WAF based on a Method 1 traverse consisting of more than 16 traverse points, do the minimum acceptable wall effects adjustment factors of 0.9800 for a partial traverse and 0.9700 for a complete traverse still apply?
- Answer:** Yes. These limits always apply. The likely results of using more than 16 Method 1 traverse points are twofold: (1) a lower average velocity and (2) a WAF that is greater than or equal to 0.9800 for a partial traverse and 0.9700 for a complete traverse.
- References:** 40 CFR Part 60, Appendix A (RM 2H, Section 12.6)
- Key Words:** Certification, Diagnostic testing, Flow monitoring, Recertification, Relative accuracy
- History:** First published in October 1999 Revised Manual

Question 3.16

Topic:	Test Method 2H -- Frequency of Performing Wall Effects Testing
Question:	If I want to use a calculated wall effects adjustment factor (WAF) to account for velocity decay near the stack or duct wall, how frequently does Test Method 2H need to be performed? May I use the WAF from last year's annual flow RATA?
Answer:	Perform Method 2H and recalculate the WAF every time a flow monitor relative accuracy test audit is performed. You may not use a calculated WAF from a previous flow RATA.
References:	40 CFR Part 60 (RM 2H, Section 12.7.2); 40 CFR Part 75, Appendix B, Section 2.3.1.1
Key Words:	Certification, Diagnostic testing, Flow monitoring, Recertification, Relative accuracy
History:	First published in October 1999 Revised Manual

Question 3.17

Topic:	Test Method 2H -- Wall Effects Adjustment Factors (WAFs) and Load Levels
Question:	When performing Method 2H, can I obtain a calculated wall effects adjustment factor at one load level and apply it to all load levels of a multi-load RATA?
Answer:	No. A calculated wall effects adjustment factor can only be applied at the load level at which it was obtained. At other load levels you must either take measurements to derive a separate calculated WAF for that load level or use the default WAF applicable for your particular stack or duct.
References:	40 CFR Part 60, Appendix A (RM 2H, Section 12.7.2)
Key Words:	Certification, Flow monitoring, Recertification, Relative accuracy
History:	First published in October 1999 Revised Manual

Question 3.18

Topic: Test Method 2H -- Discarding Wall Effects Adjustment Factors (WAFs)

Question: If I perform Method 2H and obtain a calculated WAF, must I use it?

Answer: Even after performing Method 2H, you are free to decide not to make use of the resulting calculated WAF. However, unless you can document technical reasons for invalidating a specific calculated WAF, you cannot discard one calculated WAF and use another calculated WAF in its place. If any calculated WAF is applied, it must be derived from all the calculated WAFs that were obtained using Method 2H.

For example, suppose a 9-run RATA is performed using Method 2G, and Method 2H is used to obtain calculated WAFs on Runs 1, 3, and 6. You are free to decide not to apply any calculated WAF to the Method 2G flow values. However, if a calculated WAF is applied to these flow values, it must be the arithmetic average of all three calculated WAFs obtained using Method 2H.

References: 40 CFR Part 60, Appendix A (RM 2H, Section 12.7.2)

Key Words: Certification, Flow monitoring, Recertification, Relative accuracy

History: First published in October 1999 Revised Manual

Question 3.19

Topic: Test Method 2, 2F, 2G, and 2H -- Determining Wall Effects Adjustment Factors (WAFs) as Part of the RATA

Question: Must I determine my calculated wall effects adjustment factor (WAF) from measurements taken during one or more runs of the same RATA to which the resulting WAF will be applied?

Answer: Yes. Section 12.7.2 of Test Method 2H requires that a WAF that is applied to runs in a RATA must be obtained from wall effects measurements performed during one or more runs in that RATA. It should be noted that to be considered part of the same RATA, the runs in which the WAF measurements were made must have been completed within the RATA time period requirements in Part 75, Appendix A, Section 6.5(e). Similarly, for single run tests, Section 12.7.1 of Test Method 2H requires that any wall effects measurements must be obtained during the same traverse in which the unadjusted velocity for the WAF calculation was obtained.

References: § 75.22; 40 CFR Part 60, Appendix A (RM 2H)

Key Words: Certification, Diagnostic Testing, Flow monitoring, Recertification, Relative accuracy

History: First published in October 1999 Revised Manual

Question 3.20

Topic: Test Method 2, 2F, and 2G -- Using Different Test Methods at Different Load Levels

Question: Do I need to use the same flow test method (Test Method 2, 2F, or 2G) at each load level of a multi-load relative accuracy test audit?

Answer: It is generally preferable to use the same flow test method at each load of a multi-load RATA. However, different flow test methods may be used at different load levels (e.g., Method 2F at high load and Method 2 at low and mid load) if there are valid technical reasons for doing so. Such evidence should be included in the field test report and kept on-site. Valid technical reasons for using different flow methods include evidence that the angle of flow includes significant components of yaw and/or pitch at one load level (dictating use of Methods 2F or 2G) but not at another load level (allowing use of Method 2). Reducing the time required to complete a RATA at a particular load level is not in itself an adequate technical justification for using different test methods at different load levels.

It should also be noted that the same flow test method must be used for each run within a load level of a RATA. In the example presented above, all runs at the high load level would have to be performed using Method 2F and all runs at the low and mid load levels would have to be performed using Method 2.

References: 40 CFR Part 60, Appendix A (RMs 2, 2F, and 2G); 40 CFR Part 75, Appendix B, Section 2.3.1.3.

Key Words: Certification, Diagnostic Testing, Flow monitoring, Recertification, Relative accuracy

History: First published in October 1999 Revised Manual

Question 3.21

- Topic:** Test Method 2H - Applicability of Notes Regarding Stack Diameters in Sections 8.2.3(b) and 8.2.3(c)
- Question:** Do the stack diameters given in the notes in Sections 8.2.3(b) and 8.2.3(c) of Method 2H hold for Method 1 traverses with more than 16 traverse points?
- Answer:** No. The dimensions shown in these sections only apply to a Method 1 traverse consisting of 16 points.
- Section 8.2.3(b) says that for stacks or ducts with diameters greater than 15.6 feet, the interior edge of the Method 1 equal area is farther from the wall than 12 inches (i.e., d_b is greater than 12 inches). Section 8.2.3(c) says that for a complete wall effects traverse the distance between d_{rem} and d_{last} will be less than or equal to ½ inch for stacks or ducts with diameters less than 16.5 feet. These conditions apply to Method 1 traverses consisting of 16 traverse points. Other dimensions would apply to Method 1 traverses consisting of more than 16 traverse points.
- References:** 40 CFR Part 60, Appendix A (RM 2H, Sections 8.2.3(b) and 8.2.3(c))
- Key Words:** Certification, Diagnostic Testing, Flow monitoring, Recertification, Relative accuracy
- History:** First published in October 1999 Revised Manual

Question 3.22

- Topic:** Test Method 2H -- Typographical Error in Headers of Columns D and E of Form 2H-2
- Question:** Is there an error in the headers of columns D and E in Form 2H-2, the form used to calculate wall effects replacement velocity values when performing a Method 1 traverse consisting of 16 or more traverse points? The algebraic expressions in the column headers do not agree with the instructions appearing in Section 12.4.2 and Equation 2H-8 of Method 2H.
- Answer:** Yes. There is a typographical error in these column headers. The multiplier in the algebraic expressions should be 1/4, not 2/p. The expression above column D should be

$$\frac{1}{4}p[r\&d\%1]^2$$

and the expression above column E should be

$$\frac{1}{4}p[r\&d]^2$$

References: 40 CFR Part 60, Appendix A (RM 2H)

Key Words: Certification, Diagnostic Testing, Flow monitoring, Recertification, Relative accuracy

History: First published in October 1999 Revised Manual

Question 3.23

Topic: Test Method 2H -- Using Default Wall Effects Adjustment Factor (WAF) After Deriving a Calculated WAF

Question: After taking wall effects measurements and obtaining a calculated WAF may I use the appropriate default WAF instead of the calculated WAF I obtained?

Answer: Yes. You may use the appropriate default WAF but you must report both the calculated and default WAF. In EDR v2.1 you should report the calculated WAF in RT 614/109 (Calculate wall effects adjustment factor (WAF) derived from this test run) and the default WAF in RT 614/121 (Default WAF applied to all runs of this RATA).

Note: The deadline for upgrading to EDR v2.1 is April 1, 2000 but you may use EDR v2.1 as of January 1, 2000. If you choose to report in EDR v2.1 as of January 1, 2000, you must use these record types. For flow RATAs done prior to the DAHS upgrade, only the applicable recordkeeping requirements under § 75.59(a)(7)(ii) or § 75.59(a)(7)(iii) must be met and electronic reporting of this information is not required.

References: §75.59, § 75.64; 40 CFR Part 60, Appendix A (RM 2H)

Key Words: Certification, Diagnostic Testing, Flow monitoring, Recertification, Relative accuracy

History: First published in October 1999 Revised Manual

Question 3.24

- Topic:** Stack Flow-to-load Test
- Question:** Please provide more details about the new quarterly stack flow-to-load ratio test. A comparison of hourly flow-to-load assumes that they are related, but that is not always true.
- Answer:** During the rulemaking process, EPA had extensive discussions with utility representatives concerning the flow-to-load ratio test and incorporated many of their suggestions into the May 26, 1999 final rule. One concern raised by the utilities was whether a straight flow-to-load ratio is a sufficiently reliable indicator of flow monitor performance. To address this concern, the final rule allows an alternative to the straight flow-to-load comparison. The quarterly flow rate data may instead be analyzed using the gross heat rate (GHR), which includes a correction for the diluent gas concentration. In many instances, using the GHR appears to be a more satisfactory way of evaluating the data, especially for common stacks. Also note that the tolerance band for the flow-to-load ratio or GHR test is rather wide. For a further discussion of the rationale behind the flow-to-load ratio test, see the preamble to the May 21, 1998 proposed revisions to Part 75 (63 FR 28061).
- References:** Appendix B, Section 2.2.5
- Key Words:** Flow-to-load test
- History:** First published in October 1999 Revised Manual

Question 3.25

- Topic:** Hourly Averages for Abbreviated Flow-to-load Test
- Question:** An abbreviated flow-to-load ratio diagnostic test is performed for a non-peaking unit using 6 to 12 consecutive hourly average flow rates. What kind of hourly averages are these? Is the answer the same for a peaking unit (using 3 to 12 hours)?
- Answer:** These hourly average flow rates are the ones required under § 75.10(d)(1), and are calculated in the same way for peaking and non-peaking units.
- References:** § 75.10(d)(1); Appendix B, Section 2.2.5.3

Key Words: Flow-to-load test, Peaking unit

History: First published in October 1999 Revised Manual

Question 3.26

Topic: Test Method 2H -- Restrictions on Use of Default Wall Effects Adjustment Factors (WAFs)

Question: Can the default WAF specified in Section 8.1 of Method 2H be applied to the average velocity unadjusted for wall effects obtained from a Method 1 traverse regardless of the number of points in the Method 1 traverse?

Answer: The default WAF may only be applied to the average velocity unadjusted for wall effects obtained from a Method 1 traverse consisting of 12 or 16 traverse points. A default WAF may not be applied to the average velocity obtained from a Method 1 traverse consisting of more than 16 traverse points.

The default WAF values specified in Method 2H (i.e., 0.9900 for brick and mortar stacks and 0.9950 for all other types of stacks) were derived based on field data from 16-point Method 1 traverses. Consistent with the provisions of section 12.7.2, these default WAFs may be applied to the average velocity unadjusted for wall effects "obtained from runs in which the number of Method 1 traverse points sampled does not exceed the number of traverse points in the runs used to derive the wall effects adjustment factor." That is, the default WAF may be used with Method 1 traverses consisting of 12 or 16 points, but not with Method 1 traverses consisting of more than 16 points.

Without this restriction, velocity decay would be double-counted in traverses consisting of more than 16 points (once in the additional Method 1 traverse points close to the wall and then again when the default wall effects adjustment factor is applied to the results of the Method 1 traverse).

References: 40 CFR Part 60, Appendix A, Method 2H, Sections 8.1 and 12.7.2

Key Words: Certification, Diagnostic testing, Flow monitoring, Recertification, Relative accuracy

History: First published in March 2000, Update #12

Question 3.27

Topic:	Test Method 2H -- Qualification for Default Value
Question:	For use of the default wall effects adjustment factor (WAF) values under Method 2H, do we have to do anything to qualify?
Answer:	No, just report the default WAF value in EDR v2.1, and if you are using the 1.0% default value, declare that you have a brick or mortar stack.
References:	40 CFR Part 60, Appendix A, Method 2H
Key Words:	Flow monitoring, RATA, Wall effects adjustment factor
History:	First published in March 2000, Update #12

Question 3.28

Topic:	Test Method 2H -- Gunit Stack
Question:	To use the 1.0% default wall effects adjustment factor (WAF) value in Method 2H, does the entire stack have to be brick or mortar or just the lining? What about gunit?
Answer:	To use the 1% default WAF, the stack lining must be brick or mortar. Gunit is not considered to be brick or mortar.
References:	40 CFR Part 60, Appendix A, Method 2H
Key Words:	Flow monitoring, RATA, Wall effects adjustment factor
History:	First published in March 2000, Update #12

Question 3.29

Topic:	Use of Spherical Probes for Flow Test Methods
Question:	What is the advantage of using the spherical probe for the new flow methods?

Answer:	In low pitch angle applications, a spherical probe may be easier to read than a DA or DAT probe. This is likely to be less of a consideration, however, if an electronic manometer is used to read the pitch angle pressure, as recommended in Section 6.4 of Method 2F.
References:	N/A
Key Words:	Flow monitoring, RATA
History:	First published in March 2000, Update #12

Question 3.30

Topic:	Calibration of Probe
Question:	If, under the new flow methods, we calibrate the probe in the wind tunnel at 60 and 90 fps, can we use it at any velocity?
Answer:	<p>When using a 3-D probe (<u>i.e.</u>, DA, DAT, or spherical) either under Method 2F or in yaw-determination mode under Method 2G, you may use the probe at any average velocity greater than or equal to 20 fps if it has been calibrated at 60 and 90 fps. That is, a 3-D probe may not be used under Method 2F or 2G if the average velocity is less than 20 fps.</p> <p>Under Method 2G, if you calibrate a Type S probe at 60 and 90 fps, you may use the probe at any average velocity greater than or equal to 30 fps. A Type S probe under Method 2G may be used at average velocities less than 30 fps, but only if one of the two velocity settings used when calibrating the probe is less than or equal to the average velocity encountered in the field. This must be verified in accordance with the procedures specified in Section 12.4 of Method 2G. Also, the QA/QC requirements in Sections 10.6.12 through 10.6.14 of Method 2G for calibration coefficients must be met at the chosen calibration velocity settings.</p>
References:	40 CFR Part 60, Appendix A, Methods 2F and 2G
Key Words:	Flow monitoring, RATA
History:	First published in March 2000, Update #12

Question 3.31

Topic:	Use of 3D Probe for Methods 2F and 2H
Question:	If we use a 3D probe for Method 2F, must we use a 3D probe for the WAF measurements under Method 2H?
Answer:	Yes, you must use the same type of probe.
References:	40 CFR Part 60, Appendix A, Methods 2F and 2H
Key Words:	Flow monitoring, RATA, Wall effects adjustment factor
History:	First published in March 2000, Update #12

Question 3.32

Topic:	Use of WAF for Square and Rectangular Stacks
Question:	Are there any plans to expand the use of the WAF to square and rectangular stacks or ducts? Why can't we just use a default value?
Answer:	EPA will investigate this if budget resources allow. Neither a measured nor a default WAF value may be used until the effects near the wall in a square or rectangular stack or duct have been properly studied by EPA.
References:	40 CFR Part 60, Appendix A, Method 2H
Key Words:	Flow monitoring, RATA, Wall effects adjustment factor
History:	First published in March 2000, Update #12

Question 3.33

Topic:	Test Method 2H -- Traverse Points
Question:	How many Method 1 traverse points must we use when a calculated wall effects adjustment factor (WAF) is determined using Method 2H?

Answer:	You must perform a Method 1 velocity traverse of a least 16 points for each run used in the calculation of the WAF.
References:	40 CFR Part 60, Appendix A, Method 2H
Key Words:	Flow monitoring, RATA, Wall effects adjustment factor
History:	First published in March 2000, Update #12

Question 3.34

Topic:	Minimum WAF
Question:	Under the new flow methods, what if a source finds that it is getting a calculated wall effects adjustment factor (WAF) less than 0.9700 (<u>i.e.</u> , more than a 3% reduction in the velocity calculated without Method 2H)? Can you do more than sixteen Method 1 traverse points and use a WAF value of less than 0.9700?
Answer:	<p>You may use more than sixteen Method 1 traverse points when a Method 2H calculated WAF is used. However, no matter how many Method 1 traverse points are used, you may not apply a calculated WAF that is less than 0.9700 for a complete wall effects traverse or 0.9800 for a partial wall effects traverse to the runs of a flow RATA.</p> <p>It should be noted, however, that the actual calculated value of the WAF should be reported in column 109 of RT 614. Note that the August 1999 instructions for RT 614, column 109, in this regard, were incorrect (EPA has corrected this error in the January 20, 2000 revised EDR Version 2.1 Reporting Instructions).</p> <p>For example, suppose that for a particular RATA run, you calculate a WAF of 0.9600, based on a complete wall effects traverse. You would report this measured WAF in column 109 of RT 614. However, you could <u>not</u> apply the WAF of 0.9600 to the runs of the RATA, because when a complete wall effects traverse is performed, the lowest WAF that you are allowed to use is 0.9700. Report the actual WAF applied to the RATA runs (in this case, 0.9700) in column 115 of RT 614.</p> <p>Also see Policy Question 3.15.</p>
References:	40 CFR Part 60, Appendix A, Method 2H

Key Words: Flow monitoring, RATA, Wall effects adjustment factor

History: First published in March 2000, Update #12

Question 3.35

Topic: Test Methods 2 and 2H

Question: Isn't the wall effects adjustment factor (WAF) derived in Method 2H within the error band of Method 2?

Answer: By applying the WAF allowed by Method 2H, you are reducing potential systematic error that may result under Method 2 if velocity decay at the wall is not taken into account. The error band about the mean measured stack gas velocity characterizes the random error in Method 2 and is unrelated to the systematic error addressed by the WAF.

References: 40 CFR Part 60, Appendix A, Methods 2 and 2H

Key Words: Flow monitoring, RATA, Wall effects adjustment factor

History: First published in March 2000, Update #12

SECTION 4

NO_x MONITORING

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Question 4.1 RETIRED**Question 4.2 REVISED**

Topic: NO_x Emission Rate System Availability

Question: If the diluent (O₂ or CO₂) monitor and NO_x monitor have different availabilities, what would be the availability of the system?

Answer: Section 75.33(c) states that valid NO_x emission rates (i.e., lb/mmBtu) must be obtained for each hour; if they are not, the missing data procedures apply. A valid hourly NO_x emission rate in lb/mmBtu depends upon two valid monitor readings (i.e., pollutant and diluent readings). If either hourly reading is invalid, then the emission rate for that hour is also invalid. Therefore, for NO_x, the data availability is calculated based only upon those hours during which both the pollutant and diluent monitors provide valid readings, and the pool of historical lb/mmBtu readings used to fill in missing data must likewise consist of only those hours for which both monitors provide valid readings.

Note that Section 2.2.3 of Appendix B clearly states, regarding the daily calibration error checks, that a NO_x-diluent monitoring system "is considered out-of-control if either of the component monitors exceeds the applicable specification in Section 3.2, appendix A to this part." In summary, the NO_x monitoring system is considered unavailable during any clock hour in which either the pollutant or diluent monitor (or both) is unavailable.

References: § 75.33(c); Appendix B, Section 2.2.3

Key Words: Data validity, NO_x monitoring

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 4.3 RENUMBERED AS QUESTION 26.1**Question 4.4 RETIRED**

Question 4.5 **RETIRED**

Question 4.6 **RETIRED**

Question 4.7 **RENUMBERED AS QUESTION 26.2**

Question 4.8 **RETIRED**

Question 4.9 **REVISED**

Topic: NO_x CEMS -- Multipoint Probe

Question: What sample points should be used for an installed NO_x CEMS if it has a multipoint probe?

Answer: Follow the guidelines in Sections 3.1, 3.1.1, and 3.1.2 of Performance Specification No. 2 (PS No. 2) in Appendix B to 40 CFR 60. Select representative points at a suitable location, such that the CEMS will be able to pass the RATA. Some experimentation with different probe locations and measurement points may be necessary. Candidate measurement points may include the points specified in Section 3.2 of PS No. 2.

References: 40 CFR Part 60, Appendix B (PS 2, §§ 3.1, 3.1.1, 3.1.2); Part 75, Appendix A, Section 6.5

Key Words: Monitor location, NO_x monitoring

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 4.10 **RENUMBERED AS QUESTION 26.3**

Question 4.11 RETIRED

Question 4.12 RENUMBERED AS QUESTION 26.4

Question 4.13 RENUMBERED AS QUESTION 26.5

Question 4.14 RETIRED

Question 4.15 RENUMBERED AS QUESTION 26.6

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Question 4.19 RENUMBERED AS QUESTION 26.9

Question 4.20 RENUMBERED AS QUESTION 26.10

Question 4.21 RENUMBERED AS QUESTION 26.11

Question 4.22 RETIRED**Question 4.23**

Topic: Substitute Data for NO_x Emission Rate When Moisture Value Unavailable

Question: I use Equation 19-3 to calculate NO_x emission rate in lb/mmBtu. If, for a particular hour, quality-assured average NO_x concentration and O₂ concentration values are available, but a quality-assured average percent moisture value is unavailable, should I use substitute data for NO_x emission rate in RT 320?

Answer: No, because the moisture monitor is not a component of the NO_x-diluent monitoring system. Therefore, determine the appropriate substitute data value for percent moisture and use this value in Equation 19-3 to calculate the NO_x emission rate. Report the calculated NO_x emission rate as quality-assured in RT 320.

References: EDR v2.1 Instructions, RT 320

Key Words: NO_x emission rates

History: First published in March 2000, Update #12

SECTION 5

OPACITY MONITORING

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Question 5.1 REVISED

Topic: Opacity Data Reporting

Question: The requirements for the submittal of opacity data are unclear. Does the data need to go only to the State agency?

Answer: In accordance with the provisions of § 75.65, opacity data are to be reported to the applicable State agency. It is not necessary to include opacity data in the quarterly electronic reports submitted to the Administrator. The reporting requirements in § 75.64(a)(2) specify that opacity data required in § 75.54(f), § 75.57(f), or § 75.59(a)(8) (as applicable) be included in quarterly reports. The opacity recordkeeping requirements in § 75.54(f) or § 75.57(f) (as applicable) specify that opacity data are to be recorded on a six minute basis, rather than an hourly basis, because State requirements commonly specify six-minute averaging times. Since opacity data are to be reported to the State, opacity data should not be included in the quarterly reports sent to EPA.

References: § 75.54(f), § 75.57(f), § 75.59(a)(8), § 75.65

Key Words: Opacity monitoring, Reporting

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 5.2 REVISED

Topic: Opacity Requirements

Question: If monitoring and reporting for opacity are in compliance with State requirements, will this be considered as satisfying the requirements in Part 75?

Answer: Yes, in general. Compliance with State opacity monitoring and reporting requirements would satisfy the requirements of Part 75 since § 75.65 specifies that opacity reporting be performed in a manner specified by an applicable State or local pollution control agency. In addition to complying with the reporting requirements in § 75.65, however, owners or operators are also subject to specific opacity monitoring requirements (§ 75.14) that require opacity monitoring systems to meet design, installation, equipment, and performance specifications in Performance Specification (PS) 1 in Appendix B to 40 CFR Part 60. Therefore, in States where opacity monitoring systems are not subject to the requirements in PS 1, owners and operators must still

ensure that opacity monitoring systems meet the PS 1 requirements, even though these monitoring requirements may be beyond those in the applicable State or local regulations.

An owner or operator should continue reporting opacity information according to the requirements contained in the State implementation plan. Opacity information can be submitted according to the reporting and recordkeeping requirements of Part 75; however, where a conflict occurs between existing requirements and Part 75, follow the existing requirements of the State implementation plan.

References: § 75.65, § 75.14

Key Words: Jurisdiction, Opacity monitoring, Reporting

History: First published in November 1993, Update #2; revised in the October 1999 Revised Manual

Question 5.3 **REVISED**

Topic: Opacity Data Recordkeeping

Question: If an existing State CEM program already requires recordkeeping and quarterly electronic data submittal for opacity, does the company have to keep an additional set of opacity records in the format prescribed by § 75.54(f) or § 75.57(f)?

Answer: No. If a utility is subject to existing State or local requirements, opacity records may be stored in that format. Section 75.54(f) or § 75.57(f) (as applicable) provides a default record format which must be used only in cases where there are no recordkeeping and reporting formats specified by the applicable State or local agency.

References: § 75.65, § 75.54(f), § 75.57(f)

Key Words: Jurisdiction, Opacity monitoring, Recordkeeping

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 5.4 **REVISED**

Topic: Opacity Monitor Certification

Question: For certification or recertification of an opacity monitor, which version of Performance Specification 1 (PS 1) does § 75.14 refer to -- the one in existence on the effective date (February 10, 1993) of Part 75, or the most current version (the one in effect on the day the monitor will be certified or recertified).

Answer: The most current version. That is, the version of PS 1 in effect at the time of certification or recertification of the opacity monitor pursuant to Part 75.

References: § 75.14

Key Words: Certification tests, Opacity monitoring

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 5.5 **REVISED**

Topic: Opacity Monitoring

Question: If a unit is exempted from opacity monitoring under § 75.14(b), would opacity monitors still be required to meet other existing State and Federal monitoring regulations?

Answer: Yes. An exemption from opacity monitoring under the provisions of § 75.14(b) is applicable only to opacity monitoring requirements in the Acid Rain Rule and does not supersede monitoring requirements in other rules. Therefore, if opacity monitoring is required under other regulatory programs (e.g., New Source Performance Standards or State Implementation Plans), a waiver of opacity monitoring under the Acid Rain Rule would not constitute a waiver of the requirements in other applicable rules.

References: § 75.14(b)

Key Words: Control devices, Opacity monitoring

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 5.6 **REVISED**

Topic: Opacity Monitoring -- Exemption

Question: For a unit with a wet flue gas pollution control system, §75.14(b) allows an exemption from the requirement to install, certify, operate and maintain a continuous opacity monitoring system (COMS), if the owner or operator can "demonstrate that condensed water is present in the exhaust flue gas stream and would impede the accuracy of opacity measurements." What is expected for such a demonstration?

Answer: The designated representative should submit a petition for an exemption to the Director of the Clean Air Markets Division (formerly the Acid Rain Division) under § 75.66 that includes: a written statement, certified by the designated representative, that the unit has a wet flue gas pollution control system, and the results of procedures that demonstrate that the stack gas contains liquid water droplets.

The designated representative should use the following procedure to demonstrate whether liquid water droplets are present in the gas stream. Perform the procedures described in the Notes in Sections 1.2 and 2.3.5 of EPA Method 4 (see Appendix A to 40 CFR Part 60) to demonstrate that the effluent gas stream is saturated. These procedures must be performed under representative conditions and at the COMS location or, if no COMS is currently installed, at the location required by Performance Specification 1 in Appendix B of 40 CFR Part 60. The Note in Section 1.2 requires simultaneous determination of moisture content using two procedures, (1) the reference method (with impingers) and (2) using either a psychrometric chart or saturation vapor pressure tables with measured stack gas temperature. The Note in Section 2.3.5 requires two calculations of stack gas moisture content (one calculation using each of these two procedures). If the moisture content from procedure (2) above is significantly less than the moisture content from procedure (1) above, then the stack gas is saturated and is assumed to have condensed water present.

The Director of the Clean Air Markets Division will determine whether the petition meets these requirements, and whether to exempt the unit under § 75.14(b) from Part 75 opacity monitoring requirements.

EPA notes that installation of a COMS may be required both by the Acid Rain Program and by another Federal or State program. If you want approval of an alternative opacity monitoring approach under another program, then you must also meet the relevant requirements for that other program. For example, § 60.13(i)(1) in the General Provisions of the New Source Performance Standards (NSPS) regulations (40 CFR Part 60) requires submittal of an application to the Administrator, requesting permission to use an alternative monitoring approach in cases where: "... a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by

substances with the effluent gases." Therefore, in order to use an alternative opacity monitoring approach for a unit subject to NSPS, the owner or operator must submit an application (separate from the § 75.66 petition) to the Administrator for approval. (Note that in some cases, "the Administrator" refers to the EPA Regional Office and in other cases, where NSPS enforcement authority has been delegated, it refers to the State or local agency). The Regional, State, or local office must decide, on a case-by-case basis, whether the information submitted with the application adequately demonstrates that an alternative monitoring approach is justified. To ensure national consistency in such demonstrations, the Regional, State, and local offices should consult with EPA Headquarters.

References: § 75.14(b), § 75.66; 40 CFR 60.13(i)(1); 40 CFR Part 60, Appendix A, Method 4; 40 CFR Part 60, Appendix B, Performance Specification 1

Key Words: Control devices, Exemptions, Opacity monitoring

History: First published in November 1993, Update #2; revised in March 2000, Update #12

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SECTION 6

CO₂ MONITORING

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Question 6.1

Topic:	Appendix G Method
Question:	Regarding § 75.13(b), what is required to satisfy the Administrator when choosing to use the Appendix G method for estimating daily CO ₂ mass emissions?
Answer:	If an owner or operator chooses to use the procedures in Appendix G to estimate CO ₂ emissions, adherence to applicable calculation and analytical procedures is sufficient and no additional justification for the use of Appendix G is necessary.
References:	§ 75.13(b)
Key Words:	CO ₂ monitoring, Excepted methods
History:	First published in Original March 1993 Policy Manual

Question 6.2

Topic:	Fuel Sampling
Question:	If the recording and reporting of the percent carbon in fuel for use in Equation G-1 is not required, why do we sample for it? Could the value not be based on off plant records?
Answer:	Section 2.1 of Appendix G requires that the carbon content be determined using fuel sampling and analysis. This does not require a separate sample if the utility (or fuel supplier) has already performed a sample according to the specified procedures.
References:	Appendix G, Section 2.1
Key Words:	CO ₂ monitoring, Fuel sampling
History:	First published in November 1995, Update #7

Question 6.3

Topic:	Missing Carbon Content Data
Question:	Is there any procedure that applies when percent carbon is missing?
Answer:	When carbon content data are missing, report a default value from Table G-1.
References:	Appendix G, Section 5.2.1
Key Words:	CO ₂ monitoring, Fuel sampling, Missing data
History:	First published in November 1995, Update #7

Question 6.4

Topic:	Negative CO ₂ Readings
Question:	During start up, the CO ₂ readings are very low or negative values. According to EPA guidance on negative emissions, the negative values are switched to zero. Thus, the heat input result is zero for the hour. ETS gave me an error that I should have positive heat input when the unit is operated. This is more complicated when I have a common stack.
Answer:	Use the diluent cap value (5.0% CO ₂ for boilers or 1.0% CO ₂ for combustion turbines) to calculate the heat input rate when this situation occurs.
References:	Appendix F, Section 3.3.4
Key Words:	CO ₂ monitoring, Diluent monitoring
History:	First published in October 1999 Revised Manual

Question 6.5

Topic: Use of Diluent Cap With High Percent Moisture

Question: When using the diluent cap with Equations 19-3, 19-5, F-14A or F-17 it is possible to have unrepresentative or negative results if the percent moisture is high. How do I use these equations with the diluent cap?

Answer: The agency has developed special variations of these equations for use with the diluent cap. These equations are to be used during any hour in which the diluent cap is used in place of Equations 19-3, 19-5, F-14A, and F-17. These equations have been added to the EDR v2.1 instructions. When using these equations report each equation in RT 520 and use the correct formula ID in RTs 320 and 300 for each hour.

If you use Equation 19-3 for NO_x emission rate, use Equation 19-3D for any hour in which you use the diluent cap.

If you use Equation 19-5 for NO_x emission rate, use Equation 19-5D for any hour in which you use the diluent cap.

If you use Equation F-14A to determine percent CO₂ from percent O₂, use Equation F-14D for any hour in which you use the diluent cap.

If you use Equation F-17 for heat input, use Equation F-17D for any hour in which you use the diluent cap.

References: Appendix F, Equations F-14A and F-17; 40 CFR Part 60, Appendix A, RM 19

Key Words: Diluent cap

History: First published in March 2000, Update #12

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SECTION 7

BACKUP AND PORTABLE MONITORING

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Question 7.1 **REVISED**

Topic: Portable Gas Analyzers

Question: Can a portable rack of gas analyzers be used as backup monitoring systems for multiple locations? Describe what constraints or limitations may apply.

Answer: There are two ways that a portable rack of gas analyzers may be used as backup monitors for multiple locations:

- (1) The portable analyzers may be operated as reference method backup monitoring systems (i.e., operated according to EPA Method 3A, 6C, or 7E). Detailed guidance on the use of reference method backup monitors is given in Section 21 of this Policy Manual; or
- (2) The analyzers may be used either as regular non-redundant backup monitoring systems or as like-kind replacement analyzers (see § 75.20(d)). A regular non-redundant backup monitoring system uses a different probe and sample interface from the primary monitoring system. Regular non-redundant backup monitoring systems must be certified at each location where they will be used. All certification tests in § 75.20(c), except for the 7-day calibration error test, are required.

If the portable analyzers are the same make and model as the primary gas analyzers, the portable analyzers may be used as like-kind replacement analyzers by connecting them to the same probe and interface as the primary gas monitors. Initial certification of a like-kind replacement analyzer is not required.

For both regular non-redundant backup monitoring systems and like-kind replacement analyzers, a linearity test is required each time that the backup monitor is brought into service.

Regular non-redundant backup monitoring systems must be identified in the monitoring plan required under § 75.53 as separate monitoring systems with unique system ID numbers.

In each quarter that a like-kind replacement analyzer is used for data reporting, it must be represented in the electronic monitoring plan as a component of the primary monitoring system, and must be assigned a component ID that begins with the letters "LK" (e.g., "LK3"). Data from the like-kind replacement analyzer are reported under the primary monitoring system ID number, and an hourly method of determination code (MODC) of "17" must be reported in the EDR whenever a like-kind replacement analyzer is used. Part 75 allows manual entry of both the component ID and the MODC for like-kind replacement analyzers.

The use of a regular non-redundant backup monitoring system or like-kind replacement analyzers is limited to 720 hours per year per parameter (i.e., # 720 hours each for SO₂, NO_x, CO₂, or O₂) at each unit or stack location. To use a regular non-redundant backup monitoring system more than 720 hours per year at any location, a RATA is required. To use like-kind replacement analyzers more than 720 hours per year at a unit or stack location requires redesignation of the analyzers as regular non-redundant backup systems, which then must be certified at that location.

References: § 75.20(d)

Key Words: Backup monitoring, Monitor location, Reference methods

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.2 REVISED

Topic: Non-redundant Backup Monitoring Systems

Question: Can an analyzer be certified and then be taken out of service and stored for use as a backup in case of failure of a primary analyzer?

Answer: Yes. Since the backup monitor was certified at the stack or unit location, and since the only description of the backup monitor is that it is an analyzer, the monitor should, in the absence of additional information, be designated as a regular non-redundant backup system. The backup monitoring system may be used for up to 720 hours per year at the location where it was certified.

Note: If the spare analyzer in this question were found to be the same make and model as the primary analyzer and if, when brought into service, it used the same sample interface as the primary monitor, the spare analyzer could be redesignated as a like-kind replacement analyzer (see Question 7.1).

References: § 75.20(d)

Key Words: Backup monitoring, Monitor location

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.3 **REVISED**

Topic: Backup Reference Method -- Valid Hour

Question: When providing backup monitoring with reference method testing, are two data points per hour in separate 15-minute quadrants acceptable?

Answer: The criteria that § 75.10(d)(1) specifies for primary monitoring data also apply to reference method backup monitoring data; during periods other than calibration, maintenance, or quality assurance activities, an hourly average is not valid unless it is calculated from data collected in each of the four successive 15-minute periods in the hour. During calibration, maintenance, or quality assurance, hourly averages are considered valid if they are calculated from data collected in at least two of the four successive 15-minute periods in the hour (see also Question 21.19).

References: § 75.10(d)(1)

Key Words: Backup monitoring, Data validity, Reference methods

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.4 **REVISED**

Topic: Reference Method and Backup Monitoring -- Overview

Question: Please clarify the rule requirements concerning the use of reference method backup monitors and certified backup monitors. Additionally, clarify the limitations on spare parts change-out in maintaining certification.

Answer: The owner or operator has three principal options for obtaining data when a primary monitor is not operating: (1) the use of an applicable reference method backup monitor; (2) the use of a certified redundant backup monitor; or (3) the use of a non-redundant backup monitor.

For a discussion of the use of reference method backup systems, see Section 21 of this Policy Manual. For a discussion of redundant backup monitors, see Question 7.11. For a discussion of non-redundant backup monitors, see Question 7.1.

Determination of whether specific spare part change-outs trigger recertification testing must be made on a case-by-case basis. In general, EPA does not consider routine maintenance activities identified in the QA/QC Plan for the monitor to be activities that require recertification. Additional guidance regarding the types of changes to a monitoring system that necessitate recertification is provided in Section 13 of this Policy Manual. Whenever it is unclear whether a specific change necessitates recertification testing, contact the appropriate EPA Regional Office for clarification.

References: § 75.20(b) and (d)

Key Words: Backup monitoring, Recertification, Reference methods

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.5 REVISED

Topic: Reference Methods

Question: If we can demonstrate non-stratification of stack gases, would we be allowed to apply single point sampling for Reference Methods 3A, 6C, and 7E?

Answer: Yes, if the following conditions are met.

- (1) If the reference methods are used as backup monitoring systems for obtaining Acid Rain Program data, single-point monitoring is allowed in accordance with the guidelines in Question 21.16.
- (2) If the reference methods are used for Part 75 RATA applications, Section 6.5.6 of Appendix A allows single-point sampling if stratification is demonstrated to be absent at the sampling location. A 12-point stratification test is required prior to each RATA. To qualify for single point sampling for a particular gas, Section 6.5.6.3(b) specifies that the concentration at each traverse point must deviate by no more than 5.0% from the arithmetic average concentration for all traverse points. The results are also acceptable if the concentration differs by no more than 3 ppm or 0.3% CO₂ (or O₂) from the average concentration for all traverse points. For each pollutant or diluent gas, if these criteria are met, a single sampling point, located along one of the traverse lines used during the stratification test and situated at least 1.0 meter from the stack wall, may be used for the reference method sampling.

References: 40 CFR Part 60, Appendix B, PS 2 (3.2)

Key Words: Backup monitoring, RATAs, Reference methods

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.6 REVISED

Topic: Requirements

Question: Does the 720 hours per year of allowable use of a non-redundant backup monitor or monitoring system apply to each such monitor or monitoring system at a facility?

Answer: No. The 720 hours of allowable use of non-redundant backup monitors applies to the unit or stack location, not to any particular monitor or monitoring system (see Question 7.1). Therefore, it is possible for a non-redundant backup monitor or monitoring system which is used at more than one unit or stack location to accumulate more than 720 hours of use per year (e.g., 500 hours at Stack #1 and 500 hours at Stack #2).

References: § 75.20(d)

Key Words: Backup monitoring

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.7 REVISED

Topic: Data Validity

Question: During backup monitoring, are data considered valid?

Answer: Data collected by a backup monitor during primary monitor downtime would be valid if: (1) the data are obtained using a reference method backup monitor, a certified redundant backup monitor or a non-redundant backup monitor; and (2) the backup monitor is in-control, with respect to all of its applicable quality assurance requirements.

References: § 75.10(e), § 75.32(a)

Key Words: Backup monitoring, Data validity

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.8 REVISED

Topic: Monitor Location -- Certification Requirements

Question: Will a certification on a single location for a portable backup CEM system be applicable to other previously approved monitoring locations?

Answer: No. A portable back-up monitor which is certified at a particular unit or stack location is classified as a regular non-redundant backup monitoring system (see Question 7.1). This type of monitoring system must be separately certified at each location where it is used to obtain data.

References: § 75.20(d)

Key Words: Backup monitoring, Certification process, Monitor location

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.9 REVISED

Topic: Primary and Backup Designations

Question: Can a primary monitor on one unit be used as a backup monitor on another unit, and vice-versa?

Answer: Yes. Section 75.10(e) provides that a particular monitor may be designated both as a certified primary monitor for one unit and as a certified redundant backup monitor for another unit. An example of this would be an SO₂ analyzer which is *continuously* time-shared between Units 1 and 2. If Unit 2 has its own separate primary SO₂ monitoring system, the time-shared analyzer could then be designated both as the

primary SO₂ monitoring system for Unit 1 and as a redundant backup SO₂ monitoring system for Unit 2.

References: § 75.10(e)

Key Words: Backup monitoring

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 7.10 REVISED

Topic: Backup Monitoring -- Valid Data

Question: Suppose that a company has both a certified primary and a certified redundant backup NO_x monitoring system. The primary system consists of a NO_x analyzer [component ID # 001] and a diluent analyzer [component ID # 002]. The redundant backup system consists of a NO_x analyzer [component ID # 003] and a diluent analyzer [component ID # 004]. What would happen if either the primary NO_x analyzer or the primary diluent monitor (but not both) were to go down -- could the backup NO_x monitor [003] be used with the primary diluent monitor [002] or vice-versa (i.e., could the backup diluent monitor [004] be used with the primary NO_x analyzer [001])?

Answer: Provided that the [001 - 004] and [003 - 002] combinations are included in the company's monitoring plan as additional redundant backup NO_x systems and that these systems have been certified, the proposed procedure would be acceptable.

References: § 75.20(d), § 75.30(b)

Key Words: Backup monitoring, Certification tests, Data validity, NO_x monitoring

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 7.11 **REVISED**

Topic: Redundant Backup Monitoring

Question: We are planning to install completely redundant CEM systems on all of our emission stacks. These systems will be on hot standby. In other words, our backup systems will be certified and will undergo all of the same QA/QC procedures and testing that our primary systems do. The backup monitors will operate continuously as if they were our primary monitors.

We plan to use the backup data when our primary monitor is out of service or the primary data is invalid. This will minimize our use of the missing data procedures.

It is our understanding that because our backup system will be on hot standby it will not be necessary to run a linearity check before using the data. Please confirm.

Answer: Your understanding is correct. Section 75.20(d) states that before a *non-redundant* backup monitor is used, it must undergo a linearity check. This requirement applies when the backup analyzer has been on the shelf and would need to be calibrated before being placed in service. However, for a *redundant* backup system, which is certified, operated, calibrated and maintained in the same manner as a primary system there is no need to perform a linearity check each time the backup system is brought into service.

A redundant backup system must comply with the primary CEM quality assurance and quality control requirements in Appendix B (one of which is to perform quarterly linearity checks), with the exception that daily calibration error tests are only required to validate data when the redundant backup system is actually used to report Acid Rain Program data. Provided that the certified redundant backup monitor is operating in-control with respect to all of its daily, quarterly, semiannual, and annual QA requirements, it may be used to generate quality-assured data whenever the primary monitor is down.

Note: A redundant backup monitoring system is designated as "RB" in the electronic data reporting format under the data element "Primary/Backup Designation" in RT 510.

References: § 75.20(d)

Key Words: Backup monitoring, Monitoring plan, Quality assurance

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 7.12 REVISED

- Topic:** Use of Reference Method Backups
- Question:** Has EPA established a policy regarding the use of Reference Method Backup monitoring systems? Is EPA accepting data reported from reference method backups prior to publishing final guidance?
- Answer:** Yes, the EPA has established a policy regarding the use of Reference Method Backup monitoring systems. The EPA has published final guidance in Section 21 of this Policy Manual.
- References:** § 75.24(c)(2), § 75.30(b)
- Key Words:** Backup monitoring, Reference methods, Reporting
- History:** First published in November 1994, Update #4; revised March 1995, Update #5; revised in October 1999 Revised Manual

Question 7.13 REVISED

- Topic:** Definition of Reference Method Backup Monitoring Systems
- Question:** Can a reference method backup system include a NO_x concentration component from a certified primary or backup monitoring system in combination with a reference method CO₂ monitor?
- Answer:** No. EPA will reject as part of the monitoring plan review process any systems which represent a combination of analytical components from a certified Part 75 system and a reference method instrument. The EPA has published final guidance on this issue in Section 21 of this Policy Manual (see Question 21.5).
- References:** § 75.24(c)(2), § 75.30(b)
- Key Words:** Backup monitoring, Monitoring plans, Reference methods
- History:** First published in November 1994, Update #4; revised March 1995, Update #5; revised in October 1999 Revised Manual

Question 7.14 REVISED

Topic: Linearity Check Requirements for Non-redundant Backup Systems

Question: When must a linearity check of non-redundant backup systems be performed?

Answer: In general, a linearity check must be passed each time the non-redundant backup monitor or monitoring system is brought into service. Data from the monitor are considered invalid until the linearity test is passed, unless a probationary calibration error test is passed when the non-redundant backup monitor is brought into service, in which case, data from the system may be considered conditionally valid for a period not to exceed 168 unit or stack operating hours, until a linearity test is completed. If the linearity test is passed within the 168 unit or stack operating hour window, then all of the conditionally valid emissions data, from the hour of the probationary calibration error test until the hour of completion of the linearity test, are considered to be quality-assured data, suitable for reporting. However, if the linearity test is either failed, discontinued due to a problem with the monitor, or not completed within the 168 hour window, then all of the conditionally valid data are invalidated and the monitor may not be used for reporting until a linearity test is passed.

References: § 75.20(d)

Key Words: Backup monitoring, Linearity

History: First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 7.15 REVISED

Topic: Testing Requirements for Time-shared Backup Systems

Question: Two affected units discharge to a common stack. The required SO₂, NO_x, and CO₂ monitoring is done in the individual ducts leading to the common stack, using separate primary dilution systems for each unit. However, the monitoring systems are configured in such a way that the Unit 2 analyzers can serve as backups for Unit 1 (and vice-versa) by time-sharing the analyzers between the two units. What are the certification and QA requirements for the backup monitoring systems in this configuration?

Answer: In RT 510 of the electronic monitoring plan, it is necessary to define each system including the probe component in order to distinguish one system from another. In the case described above, the backup monitoring systems should be classified as non-redundant backups in the monitoring plan, and not as redundant backups, since they can serve as backups. This implies that they will operate only occasionally. For example, the Unit 2 analyzer is not *continuously* time-shared between Units 1 and 2 (as was the case in Question 7.9), but time-sharing is done only when the Unit 1 analyzer is out of service.

Use the following guidelines to determine how many and what type of initial certification tests are required for each non-redundant backup monitoring system:

- (1) A linearity check of each non-redundant backup monitor is required, without exception.
- (2) A cycle/response time test is required in the time-shared mode to ensure that at least one data point will be obtained every 15 minutes from each unit. Report the result of this test for each system.
- (3) A RATA and bias test are required for each non-redundant backup system; and a bias test of each backup system is required. If, for each unit, the RATAs are conducted in the time-shared mode, separate RATAs and bias tests for the primary systems in the normal sampling mode are not required.
- (4) A 7-day calibration error test is *not* required.

For on-going quality assurance (QA) activities, each time that a non-redundant backup monitoring system is brought into service for measuring emissions, it must pass a linearity check. If a non-redundant backup system is used for one or more days, the system must pass a daily calibration error test on each day on which it is used to report data. If its usage continues from one calendar quarter into the next, it becomes subject to the same quarterly linearity requirements as a primary monitoring system. A RATA of each non-redundant backup system must be performed, at a minimum, once every eight calendar quarters.

References: § 75.20(d); Appendix A; Appendix B

Key Words: Backup monitoring, Certification tests, Common stack, Quality assurance, Time-sharing

History: First published in March 1995, Update # 5; revised in October 1999 Revised Manual

Question 7.16

Topic:	Use of Backup DAHS Components
Question:	Has EPA established a policy regarding the use of backup DAHS components?
Answer:	Yes. The elements of the policy are presented in question and answer format in Questions 7.17 through 7.21.
References:	Not applicable
Key Words:	Backup monitoring, DAHS
History:	First published in July 1995, Update #6

Question 7.17 REVISED

Topic:	Use of Backup DAHS Components
Question:	How should Part 75 monitoring systems containing backup digitizer and/or software components be represented in the monitoring plan?
Answer:	<p><u>All</u> of the analytical, digitizing, and software components (primary and backup) which are to be used for data reporting <u>must</u> be shown in the data handling system flow diagram required by § 75.53(e)(2)(iii).</p> <p>Each unique data reporting pathway (<u>i.e.</u>, each analyzer-digitizer-software combination) must be represented as a separate monitoring system in RTs 510 of the monitoring plan.</p> <p>Classify each data reporting pathway as either principal or auxiliary. A principal data pathway is one for which <u>all</u> of the initial certification tests and on-going quality assurance tests are required. An auxiliary data pathway is one for which only calibration error tests and DAHS verification tests are required. Use the following guidelines to identify the principal and auxiliary data pathways:</p> <p>(1) Each unique analyzer/digitizer combination must be included in at least one principal data pathway;</p>

- (2) The principal data pathways may all be connected to the same software component; and
- (3) Each data reporting pathway not identified as a principal pathway is classified as an auxiliary pathway.

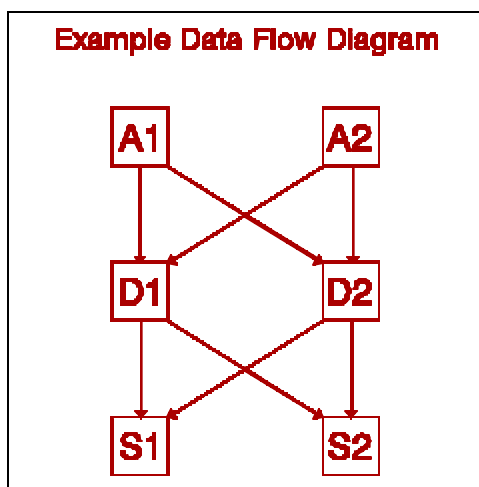
The principal data pathways are represented in RTs 510 of the monitoring plan (as appropriate) as either primary (P) systems, redundant backup (RB) systems, or non-redundant backup (B) systems. The auxiliary data pathways are represented as data backup (DB) systems in RTs 510 and must have separate system IDs. Data backup systems have the same analytical and digitizing components as one of the primary or backup monitoring systems, but have a different software component.

Each backup software component must be assigned a unique component ID number and serial number in RT 510.

Digitizers must be shown as system components in RTs 510 only: (1) if the digitizers perform Table C calculations for Part 75 data reporting; and/or (2) when a particular analyzer is connected to two or more different digitizers through which data can be generated for reporting purposes.

Sufficient formulas must be included in RTs 520 of the plan to provide traceability for each monitoring system that is used to report data.

Example: Consider the following situation in which primary and redundant backup analyzers, digitizers and software components are shown in the data flow diagram in the monitoring plan. The example diagram is:



Based on this example diagram, a total of eight data reporting pathways are identified:

Reporting Pathways from Various Analyzer - Digitizer - Software Combinations								
Pathway #	1	2	3	4	5	6	7	8
Analyzer #	A1	A1	A1	A1	A2	A2	A2	A2
Digitizer #	D1	D1	D2	D2	D2	D2	D1	D1
Software #	S1	S2	S1	S2	S1	S2	S1	S2
Pathway Designation	P	DB	RB	DB	RB	DB	RB	DB

These eight data pathways represent four unique analyzer/digitizer combinations (A1/D1, A1/D2, A2/D2 and A2/D1). Therefore, according to Guideline (1), above, a minimum of 4 principal data pathways are needed. According to guideline (2), above, the principal pathways may all include the same software component. Therefore, pathways **1, 3, 5, and 7** (which all include S1) are selected as principal, and **2, 4, 6, and 8** are the auxiliary pathways.

Pathway **1** is designated as the primary (P) monitoring system in RTs 510. The other principal pathways (**3, 5, and 7**) are designated as redundant backup (RB) systems. Auxiliary pathways **2, 4, 6, and 8** are designated as data backup (DB) systems. The digitizers D1 and D2 must be shown as system components in RTs 510 because analyzer A1 is connected to both of the digitizers, as is analyzer A2.

References: § 75.53(c)

Key Words: Backup monitoring, DAHS, Monitoring plan

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 7.18 REVISED

Topic: Use of Backup DAHS Components

Question: How should certification, recertification, and periodic QA/QC be handled when the monitoring plan includes systems containing backup digitizer and/or software components?

Answer: **For certification or full recertification**

- (1) Appendix A Certification Tests: A complete battery of Appendix A certification tests must be done for each principal data pathway (i.e., for each system identified as primary, redundant backup, or non-redundant backup in RTs 510 of the monitoring plan).

The results of the required Appendix A tests and a certification or recertification application must be submitted in accordance with § 75.63

For each auxiliary data pathway (i.e., for each system identified as data backup (DB) in RTs 510 of the monitoring plan), a daily calibration error test is the only field test requirement. These results must be submitted both in hard-copy (DAHS printouts) and electronically. For the electronic submittal, use RTs 600. Submit two RTs 600 (zero and high) for the daily calibration error test of each data backup system.

- (2) DAHS Verification: The following demonstrations are required for each primary and backup software component: (1) verification of monitoring plan formulas; (2) missing data routine check; and (3) verification statement, signed by the DR, that the data are in proper EDR format.

For QA/QC

- (1) Daily QA/QC: The ordinary requirements of Part 75 apply to all data pathways. That is, for each monitoring system in RTs 510 that is used for data reporting on a given day (whether the system is classified as primary, redundant backup, non-redundant backup, or data backup), there must be an associated successful daily calibration, consistent with Sections 2.1.3 through 2.1.6 of Appendix B to validate the hourly data from the system for that day.
- (2) Periodic QA/QC: All required quarterly, semiannual, and annual QA/QC tests (i.e., linearity checks, RATAs, etc.), must be done as specified in Appendices A and B to Part 75 for each monitoring system that corresponds to a principal data reporting pathway (i.e., for primary, redundant backup, and non-redundant

backup systems). No quarterly, semiannual, or annual QA tests or any additional reporting is required for the auxiliary data pathways (i.e., the data backup systems).

References: § 75.20(d), § 75.63; Appendix B, Section 2

Key Words: Backup monitoring, Certification tests, DAHS, Quality assurance

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 7.19

Topic: Use of Backup DAHS Components

Question: Are there any restrictions on the use of auxiliary data reporting pathways (i.e., data backup systems)?

Answer: Yes. The auxiliary pathways may not be used unless all of the principal data reporting pathways (i.e., the primary, redundant backup, and non-redundant backup monitoring systems) are unable to record and/or report valid data.

References: § 75.10(e)

Key Words: Backup monitoring, DAHS, Reporting

History: First published in July 1995, Update #6

Question 7.20

Topic: Use of Backup DAHS Components

Question: What bias adjustment factor (BAF) must be applied when a data backup (DB) system is used for Part 75 reporting?

Answer: Each data backup (DB) system identified in the monitoring plan differs from one of the principal systems in the plan (i.e., from either a primary, redundant backup or non-redundant backup system), only in that it has a different software component. Therefore, for each data backup system, use the BAF associated with the principal

monitoring system that has the same analyzer and digitizer components as the DB system.

In the example given in Question 7.17, above, DB systems 2, 4, 6, and 8 would use the same BAF factors as systems 1, 3, 5, and 7, respectively.

References: Appendix A, Section 7.6.5

Key Words: Backup monitoring, Bias adjustment factor, DAHS

History: First published in July 1995, Update #6

Question 7.21 REVISED

Topic: Use of Backup DAHS Components

Question: Suppose that the RTs 510 of my monitoring plan lists a number of monitoring systems, previously approved as redundant backup (RB) systems, which are actually data backup (DB) systems. Must I update my monitoring plan?

Answer: Unless you decide to fully quality assure data from the system as a redundant backup system, you must redesignate the "RB" systems as "DB" in RTs 510 of the monitoring plan. If you redesignate the redundant backup systems as data backup systems, update the monitoring plan electronically in RT 510 in the next quarterly report submitted. In addition to submitting monitoring plans in the quarterly reports, the Agency is developing a procedure that will allow sources to submit monitoring plans electronically outside of the quarterly report.

References: § 75.53, § 75.64

Key Words: Backup monitoring, DAHS, Electronic report formats, Monitoring plan

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 7.22

- Topic:** Definition of Like-kind Replacement Non-redundant Backup Analyzer
- Question:** What constitutes a like-kind replacement non-redundant backup analyzer, as described in § 75.20(d)(2)(ii)?
- Answer:** A like-kind replacement analyzer is one that uses the same method of sample collection (dilution-extractive, dry extractive, or in-situ) and analysis (for example, pulsed fluorescence, UV fluorescence, chemiluminescence) as the analyzer that it replaced. The like-kind replacement analyzer must also use the same probe and interface as the primary system and have the same span value. The full-scale range need not be identical, but must meet the guidelines in Section 2.1 of Appendix A.
- References:** § 75.20(d)(2)(ii); Appendix A, Section 2.1
- Key Words:** Like-kind replacement analyzer, Non-redundant backup monitors
- History:** First published in March 2000, Update #12

SECTION 8

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Question 8.1 **REVISED**

Topic: SO₂ and Flow Testing

Question: An SO₂ monitor by itself requires 10% relative accuracy and a flow monitor by itself requires 15%. However, SO₂ in tons (flow + SO₂) requires an accuracy of 10%. Doesn't this really require a flow monitor to achieve at least a 10% relative accuracy? Please explain.

Answer: Although the original 1991 proposed Part 75 rule contained a relative accuracy requirement for SO₂ mass emission rate (lb/hr), this requirement was not included in the final version of the rule published in the Federal Register on January 11, 1993. The requirement was not included in the final rule because EPA was concerned that there were insufficient data to propose a mass emission relative accuracy requirement at the time the rule was signed. However, the preamble to the January 11, 1993 rule stated that EPA might promulgate such a standard in the future. In order to gather data for a possible future SO₂ mass emission rate relative accuracy standard, EPA required the annual SO₂ and flow rate RATA tests to be done concurrently.

On May 21, 1998, EPA proposed revisions to Part 75. The preamble to the proposed revisions stated that based on an analysis of the available concurrent SO₂ and flow rate RATA information, EPA was proposing: (1) to remove the requirement for annual concurrent RATA testing of SO₂ and flow rate; and (2) not to promulgate a combined relative accuracy standard for SO₂ mass emission rate (lb/hr). Commenters were supportive of these proposals and they were incorporated into the May 26, 1999 final rule.

The Part 75 relative accuracy (RA) standards for SO₂ and flow rate therefore remain on an individual component monitor basis. For SO₂ monitors, the required RA remains at 10.0%. Note, however, that beginning on January 1, 2000, the flow monitor RA specification will change from 15.0% to 10.0%.

References: Appendix A, Section 3.3

Key Words: Flow monitoring, Relative accuracy, SO₂ monitoring

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 8.2 **REVISED**

Topic: Quality Assurance RATAs

Question: Following successful certification, when is the first RATA required?

Answer: According to Section 2.3 of Appendix B to 40 CFR Part 75, the requirement to conduct semiannual or annual relative accuracy test audits (RATAs) is effective as of the calendar quarter following the quarter in which the monitor is provisionally certified (the date when certification testing is completed). Therefore, depending upon whether or not the relative accuracy measured during the initial monitor certification qualifies the monitor for an annual RATA frequency, the *projected* deadline for the next RATA would either be the second or fourth calendar quarter following the quarter during which the monitor is provisionally certified. However, as explained in the following paragraphs, the *projected* RATA deadline may not be the *actual* deadline, depending on how much a unit operates and what type of fuel is combusted.

The May 26, 1999 revisions to Part 75 changed the method of determining RATA deadlines from a calendar quarter basis to a QA operating quarter basis. A QA operating quarter is a calendar quarter in which there are \$ 168 unit or stack operating hours. Partial operating hours are counted as full hours in determining whether a quarter is a QA operating quarter (see definitions of unit operating hour and stack operating hour in § 72.2).

If a CEMS obtains a semiannual RATA frequency, the next RATA is due by the end of the second QA operating quarter following the quarter in which the RATA is completed. Similarly, an annual RATA frequency means that the next RATA is due by the end of the fourth QA operating quarter following the quarter in which the RATA is completed.

For units that consistently operate more than 168 hours in each quarter, there will be little or no difference between the calendar quarter and QA operating quarter methods of determining RATA deadlines. However, for units that operate infrequently, a one quarter extension of the projected RATA test deadline may be claimed (using RT 697) for each calendar quarter that does not qualify as a QA operating quarter. Also, for units that burn only very low sulfur fuel (as defined in § 72.2) during a particular calendar quarter, a one quarter extension of the SO₂ monitor RATA deadline may be claimed. Note that there is an upper limit on all such RATA deadline extensions. The deadline may not be extended beyond the end of the eighth calendar quarter following the quarter in which a RATA was last performed.

If unforeseen circumstances prevent a RATA from being completed by the deadline, the grace period provision in Section 2.3.3 of Appendix B may be used.

References:	Appendix B, Section 2.3
Key Words:	Deadlines, Frequency incentives, RATAs
History:	First published in original March 1993 Policy Manual; revised in July 1995, Update #6; revised in October 1999 Revised Manual

Question 8.3 **REVISED**

Topic:	Contemporaneous SO ₂ and Flow RATAs
Question:	Define "contemporaneous" regarding the timeframe in which flow testing and SO ₂ testing must be completed.
Answer:	The original Part 75 rule required SO ₂ and flow rate testing to be conducted contemporaneously. The purpose was to develop a data base for a possible combined SO ₂ -flow rate relative accuracy standard. However, EPA has decided against promulgating the combined SO ₂ -flow rate standard, and, in the revised rule (May 26, 1999), all references to "contemporaneous" or "concurrent" SO ₂ and flow rate testing have been deleted.
References:	Appendix A, Section 6.5
Key Words:	Flow monitoring, RATAs, SO ₂ monitoring
History:	First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 8.4 **REVISED**

Topic:	Dual-range Monitor RATA
Question:	Do RATAs need to be done for both ranges of a dual-range monitor?
Answer:	No. In accordance with Section 6.5(c) of Appendix A, simply do the RATA on the range that is considered normal. For units with add-on SO ₂ or NO _x controls, the low range is considered normal. When separate monitor ranges are used for different fuel

types (e.g., low sulfur and high sulfur fuels), both ranges are considered normal. In such cases, perform the RATA on the range in use at the time of the scheduled test.

References: Appendix A, Section 6.5(c)

Key Words: Dual-range monitor, RATAs

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 8.5 REVISED

Topic: RATA Frequency Incentive

Question: If we fail our first RATA, and pass a second time, may we repeat the test to qualify for a lower test frequency?

Answer: Yes. Whereas the original Part 75 rule limited the owner or operator to two RATA attempts to obtain a more favorable relative accuracy percentage or bias adjustment factor (BAF), Section 2.3.1.4 in Appendix B of the revised rule (May 26, 1999) allows as many RATA attempts as are needed to obtain the desired percent RA or BAF. The only condition is that the data validation procedures in Section 2.3.2 of Appendix B must be followed.

References: Appendix B, Sections 2.3.1.4 and 2.3.2

Key Words: Frequency incentives, RATAs

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 8.6

Topic: Flow RATAs -- Traverse Points

Question: After alternative site verification with a directional probe traverse of 40 points (or 42 points for rectangular ducts) according to 40 CFR Part 60, Appendix A, Method 1, Section 2.5.2, should subsequent flow Relative Accuracy Test Audits (RATAs), which may use S-type probes, be based on Method 1, Section 2.2.2 traverse point criteria

(e.g., 16 points) or the initial 40 (42) point criteria specified in Method 1, Section 2.5.2?

Answer: Either traverse point selection criteria specified in Method 1 (i.e., either 16 points or 40 (42) points) is acceptable for subsequent flow RATAs.

Part 75, Appendix A, Section 1.2 recommends the use of the flow profile procedures in 40 CFR Part 60, Appendix A, Test Method 1, Section 2.5 (which specifies the 40 (42) point traverse) to determine the acceptability of the potential flow monitor location. (The potential flow monitor location is acceptable if the resultant angle is # 20E and the standard deviation is # 10E.)

Following an acceptable flow profile study, the flow monitor must pass all the required performance tests for certification and QA/QC, including flow RATAs. The selection of traverse points for subsequent flow RATAs, according Part 75, Appendix A, Section 6.5.6, need only meet the requirements of 40 CFR Part 60, Appendix A, Test Method 1, and **not** Section 2.5.2 specifically.

References: 40 CFR Part 60, Appendix A (RM 1); 40 CFR Part 75, Appendix A, Section 6.5.6

Key Words: Flow monitoring, RATAs, Reference methods

History: First published in May 1993, Update #1

Question 8.7 **REVISED**

Topic: Flow RATAs

Question: May an electronic manometer be used as the differential pressure gauge when performing a relative accuracy test audit (RATA) on a volumetric flow monitor using 40 CFR Part 60, Appendix A, Method 2? If so, what should the averaging period be?

Answer: Yes, an electric manometer may be used in this circumstance. If regular Method 2 is used for the flow RATA, the electronic manometer should be calibrated according to the procedures in 40 CFR Part 60, Appendix A, Method 2, Section 2.2. The ? P readings from the electronic manometer should be compared to those of a gauge-oil manometer before and after the test series. If Method 2F (3-dimensional probe) or Method 2G (2-dimensional probe) is used for the flow RATA, calibrate the electronic manometer as described in Section 10.3 of those methods.

A minimum averaging period of one minute at each traverse point is recommended when an electronic manometer or transducer is used. The same averaging period should be used for each traverse point in the run.

References: 40 CFR Part 60, Appendix A (RM 2)

Key Words: Flow monitoring, RATAs, Reference methods

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 8.8

Topic: NO_x RATA

Question: What burner configuration should be used when doing a NO_x RATA?

Answer: When performing a pollutant monitor RATA, use the burner configuration that the unit normally uses when operating.

References: Appendix A, Section 6.5

Key Words: Certification tests, RATAs

History: First published in November 1993, Update #2

Question 8.9 REVISED

Topic: RATA Procedure

Question: Suppose that during the RATA we determine that there is a problem after three or four runs. May we continue the test without counting the three or four runs in the total runs for certification?

Answer: It depends on the nature of the problem. If the reason for discontinuing a RATA is unrelated to the performance of the CEMS being tested (e.g., problems with the reference method or with the affected unit(s)), any valid test runs that were completed prior to the occurrence of the problem may either be used as part of the official RATA or the runs may be disregarded and the RATA re-started. However, if a RATA is

aborted due to a problem with the CEMS, the test is considered invalid and must be repeated. In such cases, none of the runs in the aborted test may be used as part of the official RATA and the aborted test may *not* be disregarded (since it affects data validation), but must be reported in the electronic quarterly report.

References: § 75.20(b)(3); Appendix A, Section 6.5.9; Appendix B, Section 2.3.2

Key Words: Certification tests, RATAs

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 8.10 RETIRED

Question 8.11

Topic: RATA -- Use of BAF

Question: If a unit has been using a bias adjustment factor since its last RATA, should the measurements obtained in the next RATA be multiplied by the adjustment derived from the earlier RATA?

Answer: No. The bias test is designed to determine if the measured values from the CEMS are systematically low relative to the reference method. This can only be determined by using the unadjusted values from the CEMS.

References: Appendix A, Section 7.6.5; Appendix B, Section 2.3

Key Words: Bias, RATAs

History: First published in November 1993, Update #2

Question 8.12 REVISED

Topic: Concurrent Runs for Moisture, CO₂, and O₂ with Flow

Question: Are separate Method 3 (CO₂/O₂) and Method 4 (moisture) runs required for each Method 2 (flue gas velocity) run when performing a flow RATA?

Answer: No, provided that the only reason for measuring moisture or CO₂/O₂ is to determine the stack gas molecular weight. In this case, it is sufficient to collect one sample for Method 3 and Method 4 for each three successive velocity traverses using Method 2.

Since stack gas velocity varies with the square root of one over the stack gas molecular weight (see Eq. 2-9 in Method 2), relatively large variations in O₂, CO₂, and moisture will have a fairly small impact on the calculation of gas velocity. Therefore, if gas composition and moisture data are only used for calculating stack gas molecular weight, collecting Method 3 and Method 4 samples with each Method 2 run is not necessary.

For gas monitor RATAs, however, moisture results are sometimes needed to convert CEM and reference method data to the same basis. In such instances, a one percent change in flue gas moisture content causes a one percent change in the CEM or reference method results. Since changes in stack gas moisture content can have a significant impact on corrected results and the outcome of performance tests, Method 4 samples must be collected with each set of reference method samples when the Method 4 results are used to correct CEM and reference method results to the same moisture basis. Note that if two gas RATA runs are able to be completed within the same hour (60 minute period), the results of a single Method 4 run, taken during the 60 minute period, may be applied to both RATA runs.

References: 40 CFR Part 60, Appendix A (RMs 2, 3, and 4)

Key Words: Certification tests, RATAs, Reference methods

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 8.13 RETIRED

Question 8.14 RETIRED**Question 8.15 REVISED**

Topic: Timing Requirements for Flow RATAs

Question: Section 6.5 of Appendix A requires each RATA to be completed within 7 days. For flow, does this mean that all three levels must be tested in 7 days?

Answer: No. In the original January 11, 1993 version of Part 75, Section 6.5 of Appendix A required each RATA to be completed within a seven day period. A RATA is a series of nine runs or more comparing a reference method to a CEMS, the results of which are analyzed statistically. Therefore, for an SO₂, NO_x, or CO₂ RATA, EPA interpreted Section 6.5 to mean that there is a seven calendar day window in which to complete the nine run sequence. For multiple-load flow RATAs, the Agency considered the relative accuracy testing at each flow rate level to have a separate seven day window.

Note that in the May 26, 1999 revisions to Part 75, the requirement to complete each RATA within seven calendar days was changed. The new requirement, found in Section 6.5(e) of Appendix A, states that each RATA should be completed within 168 consecutive unit or stack operating hours. For multi-load flow RATAs, up to 720 consecutive unit or stack operating hours are now allowed to complete the testing at all load levels.

References: Appendix A, Section 6.5

Key Words: Certification tests, Flow monitoring, RATAs

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 8.16 REVISED

Topic: Reporting Requirements for Failed RATAs

Question: How are failed or discontinued RATA results to be reported to the Agency?

Answer: A completed, failed RATA should be reported in the same way as a completed, passed RATA. That is, in RT 610, use a run status flag of "1" in column 62 to indicate each run that was used in the relative accuracy calculation and use a run flag of "0" to indicate which runs (maximum of three) were not used in the calculations. Submit RT 611, summarizing the results of the relative accuracy test. For failed RATAs, always leave column 111 (bias adjustment factor) blank.

Discontinued RATAs only have to be reported when they affect data validation. Therefore, when a RATA attempt is aborted due to a problem with the CEMS, it must be reported because the monitoring system is considered to be out-of-control as of the hour in which the test is discontinued. To report an aborted RATA attempt, use a run status flag of "9" for each test run. Do not submit RT 611 for an aborted RATA.

Discontinued RATAs which do not affect data validation do not have to be reported to EPA, but a record of all such RATA attempts must be kept on-site as part of the official test log for the monitoring system(s). Specifically, a discontinued RATA does not have to be reported if the test is discontinued due to a problem unrelated to the performance of the CEMS (e.g., due to a problem with the reference method or with the affected unit(s)).

References: Appendix B, Section 2.3.2

Key Words: Certification tests, Electronic report formats, RATAs, Reporting

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 8.17 REVISED

Topic: Rounding RATA Results to Determine RATA Frequency

Question: The results of a NO_x RATA, reported to two decimal places as required by the EDR, come out to 7.51% relative accuracy (RA). Does this qualify for reduced RATA frequency?

Answer: Yes. Section 2.3.1.2 of Appendix B to Part 75 allows annual, rather than semiannual, RATA frequency when the RA is 7.5% or less. The RA specification is to one decimal place. Therefore, a RA of 7.51% qualifies for the annual RATA frequency because, by the normal rules of rounding off, 7.51, to the nearest tenth, is 7.5. If the second decimal place in the reported RA had been 5 or greater, this would have rounded off to 7.6% and the monitoring system would not have qualified for the reduced RATA frequency.

References: Appendix B, Section 2.3.1.2

Key Words: RATAs, Reporting

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 8.18 REVISED

Topic: RATA Load Requirements for Common Stacks

Question: Our company has a plant with three units using a common stack. One of those units experienced an unscheduled outage during the last quarter in which we should perform an annual relative accuracy test audit at three load levels. Should we wait to perform the relative accuracy test audit for flow until all three units are operating again?

Answer: Every effort should be made to perform the relative accuracy test audit by the end of the required quarter. Section 6.5.2.1 of Appendix A defines the range of operation for a unit or common stack. For common stacks, the range of operation extends from the minimum safe, stable load of any unit using the stack to the highest sustainable load with all units in operation. Section 6.5.2.1 further defines the low, mid, and high load levels as 0 - 30%, 30 - 60% and 60 - 100% of the range of operation, respectively. Therefore, in the present example, if a load level of at least 60% of the range of operation could be attained with two units in operation, this would suffice for the high level flow RATA. The mid and low flow tests could then be done at 35% and 10% of the operating range, respectively (note that Section 6.5.2 of Appendix B requires a minimum separation of 25% of the operating range between adjacent load levels). If, however, a true high level data point is not attainable with only two units in operation, then either: (1) perform the high level flow relative accuracy test based upon the maximum attainable operating level of the units operating during that quarter and document in the electronic quarterly report (in the 900-level records) that due to an unscheduled unit outage there was a deviation from the normal flow RATA procedures; or (2) if it is expected that all three units will be back in service soon after the end of the quarter, perform the high-level flow RATA within the 720 unit operating hour grace period allowed under Section 2.3.3 of Appendix B.

References: Appendix A, Sections 6.5.2 and 6.5.2.1; Appendix B, Sections 2.3.1 and 2.3.3

Key Words: Common stack, RATAs

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 8.19 **REVISED**

Topic: Reduced RATA Frequency Standard for Low NO_x Emitters

Question: There are a number of gas and oil fired turbines that have extremely low NO_x concentrations (less than 10 ppm). Their maximum potential concentrations are approximately 60 ppm. Is there an alternative approach for determining RATA frequency for these CEMS?

Answer: Yes, if a unit qualifies as a low emitter for NO_x (< 0.200 lb/mmBtu), it can qualify for the reduced RATA frequency where the average monitor value during the RATA is within 0.015 lb/mmBtu of the average reference method value.

References: Appendix B, Section 2.3.1.2

Key Words: NO_x monitoring, RATAs

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 8.20 **REVISED**

Topic: Schedule of Tests

Question: Is it possible to move an annual RATA from the fourth calendar quarter following the last test to the third or second calendar quarter?

Answer: Yes. You may perform the RATA any time before the end of the *projected* RATA deadline (i.e., two or four calendar quarters following your last test). Therefore, you may adjust your RATA schedule as necessary.

References: Appendix B, Section 2.3

Key Words: Deadlines, RATAs

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 8.21 **REVISED**

Topic: RATA Schedule for Flow Monitors

Question: How do I determine when to perform my next flow RATA?

Answer: For a flow monitor, the percent relative accuracy obtained determines when the next test must be performed.

Prior to January 1, 2000, if a flow monitor passes a RATA and the relative accuracy at any load tested is > 10.0 percent and # 15.0 percent, then the next flow RATA must be performed on a semiannual basis (i.e., within the next two QA operating quarters (see Question 8.2 for an explanation of QA operating quarters)). If the relative accuracy is # 10.0 percent at all loads tested then the next flow RATA must be performed on an annual basis (i.e., within the next four QA operating quarters).

On and after January 1, 2000, if a flow monitor passes a RATA and the relative accuracy at any load tested is > 7.5 percent and # 10.0 percent, then the next flow RATA must be performed on a semiannual basis (i.e., within the next two QA operating quarters). If the relative accuracy is # 7.5 percent at all loads tested then the next flow RATA must be performed on an annual basis (i.e., within the next four QA operating quarters).

Each time that a 2-load or 3-load flow RATA is completed and passed, the frequency (semiannual or annual) of the next flow RATA is established or re-established. Note, however, that a single-load (normal load) flow RATA may *not* be used to establish or re-establish the RATA frequency, except when: (1) the single-load RATA is specifically required under Section 2.3.1.3(b) of Appendix B (for flow monitors installed on peaking units and bypass stacks); or (2) a single-load RATA is allowed under Section 2.3.1.3(c) of Appendix B, for a unit which has operated at a single load level (low, mid, or high) for \$ 85.0% of the time since the last annual flow RATA. Apart from these exceptions, the only way to establish or re-establish the RATA frequency for a flow monitor is to perform a 2-load or 3-load flow RATA.

References: Appendix B, Sections 2.3.1.1, 2.3.1.2, 2.3.1.4, and 2.4

Key Words: Deadlines, Flow monitoring, Frequency incentives, RATAs

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 8.22 REVISED

- Topic:** Reference Method Procedures
- Question:** In 40 CFR Part 60, Appendix A, Test Method 2, do Figure 2-5 and the Average Stack Gas Velocity (Equation 2-9) require the square root of the average differential pressure or the average of the square roots of the differential pressures?
- Answer:** Method 2 requires the average of the square roots of the differential pressures. It has come to our attention that some test companies have been incorrectly calculating this average. Do not send resubmittals addressing this problem. Sources must ensure that future submittals to EPA are calculated correctly.
- References:** 40 CFR Part 60, Appendix A (RM 2)
- Key Words:** Reference methods
- History:** First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 8.23 REVISED

- Topic:** Reference Method Procedures
- Question:** When using Equation 4-3 in Test Method 4, should the factor: $(\Delta H)/13.6$ (i.e., the average pressure differential across the orifice meter divided by 13.6) in Equation 5-1 of Test Method 5 be used to correct the sample volume?
- Answer:** Under the Acid Rain Program when Test Method 4 is required, either Equation 4-3 or Equation 5-1 may be used to correct the sample volume.
- References:** 40 CFR Part 60, Appendix A (RM 4)
- Key Words:** Reference methods
- History:** First published in July 1995, Update #6; revised in November 1995, Update #7

Question 8.24 REVISED

- Topic:** Bias Adjustment for Flow Monitor RATAs
- Question:** When a single, normal load flow RATA is required (or allowed) to be performed on a flow monitor, should a utility do the bias test on these data? If so, should the data from the normal level be used to calculate a new bias adjustment factor?
- Answer:** Yes. Perform a bias test for each single load flow RATA required or permitted under Part 75. If the flow monitor passes the bias test, apply a bias adjustment factor (BAF) of 1.000 for all flow data until the next successful flow RATA. If the monitor fails the bias test, calculate a BAF from the normal level RATA and apply this revised bias adjustment factor to each hour of flow rate data, beginning with the hour after the hour in which the RATA testing is completed.
- References:** Appendix A, Sections 7.6.4 and 7.6.5; Appendix B, Section 2.3.2
- Key Words:** Bias, Flow monitoring, RATA
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 8.25 REVISED

- Topic:** Use of Short RM Measurement Line after Wet Scrubber
- Question:** Section 6.5.6 in Appendix A of Part 75 states that the Reference Method (RM) traverse points for gas RATA tests must meet the location requirements of Performance Specification # 2 (PS 2) in Appendix B of 40 CFR 60. Section 3.2 of PS 2 specifies that downstream of wet scrubbers, the RM traverse points must be located on a long measurement line, with points at 16.7%, 50% and 83.3% of the stack diameter. Use of the alternative short RM measurement line, with points located 0.4 m, 1.0 m and 2.0 m from the stack wall is disallowed in such instances. However, for large-diameter stacks, use of a long measurement path is difficult and presents many logistical problems. Is it possible for the owner or operator of a scrubbed unit to conduct a test or demonstration in order to be allowed to use the short RM measurement line?
- Answer:** Yes. The revised Part 75 rule (May 26, 1999) includes new provisions in Section 6.5.6 of Appendix A which allow the short measurement line to be used following a

wet scrubber, provided that, just prior to each RATA, stratification is demonstrated to be minimal at the sampling location.

To demonstrate this, an initial 12-point stratification test is required at the sampling location (see Section 6.5.6.1 of Appendix A). Reference Methods 6C, 7E, and 3A are used to measure SO₂, NO_x, and CO₂, respectively. Sampling is required for at least 2 minutes at each traverse point. A stratification test is also required for each subsequent RATA at the sampling location. However, for the subsequent RATAs, in lieu of repeating the initial 12-point test, an abbreviated 3-point or 6-point stratification test may be done (see Section 6.5.6.2 of Appendix A).

For each pollutant or diluent gas, Section 6.5.6.3(a) of Appendix A specifies that stratification is considered to be minimal if the concentration at each traverse point is within $\pm 10.0\%$ of the mean concentration value for all the points. The results are also acceptable if the concentration at each traverse point differs by no more than 5 ppm or 0.5% CO₂ or O₂ from the average concentration for all traverse points. If stratification is found to be minimal, the short RM measurement line may be used for the RATA tests.

The data and calculated results from all stratification tests are to be kept on file at the facility, available for inspection, with the rest of the RATA information.

References: Appendix A, Sections 6.5.6, 6.5.6.1, 6.5.6.2, and 6.5.6.3; 40 CFR Part 60, Appendix B (PS 2)

Key Words: RATAs, Reference methods, Scrubbers

History: First published in March 1997, Update #11; revised in October 1999 Revised Manual

Question 8.26

Topic: Peaking Unit Annual Flow RATA

Question: Peaking units are only required to do an annual flow RATA at normal load. Must units meet the definition of a peaking unit in Part 72 in order to qualify for this reduced testing?

Answer: Yes. Report the peaking unit status in RT 507 after April 1, 2000 and in RT 910 for now.

References: Appendix B, Section 2.3

Key Words: Peaking units, Reporting

History: First published in October 1999 Revised Manual

Question 8.27

Topic: Reference Flow-to-load Ratio

Question: For the quarter in which we do a flow RATA, should we use the data from that RATA for establishing the reference flow-to-load ratio for that same quarter or should we use data from the previous RATA?

Answer: Always base R_{ref} on the most recent normal load flow RATA, even if the RATA was performed in the quarter being evaluated. Note that for any quarter in which a normal load flow RATA is performed and passed, flow rate data recorded prior to the RATA may be excluded from the quarterly flow-to-load ratio data analysis. See Sections 2.2.5(a)(5) and 2.2.5(c)(5) of Appendix B.

References: Appendix B, Section 2.2.5

Key Words: Flow-to-load test, RATA

History: First published in October 1999 Revised Manual

Question 8.28

Topic: QA Operating Quarter -- Calendar Quarter Deadline

Question: If we use the new definition of a QA operating quarter to claim exemptions from quarterly linearity checks or to extend RATA deadlines, will we have to start up units just to do testing when we reach the calendar quarter deadlines (i.e., a linearity is required at least every four calendar quarters and a RATA is required at least every eight calendar quarters)?

Answer: No. In addition to the quarterly linearity check exemptions and RATA deadline extensions that may be claimed on the basis of non-QA operating quarters, there are also grace periods for missed tests. Grace periods allow required tests to be

completed within a certain number of unit or stack operating hours after the end of the quarter in which the QA test was due. The two cases are as follows:

For linearity checks: Appendix B to Part 75 states in Section 2.2.3(f) that "If a linearity test has not been completed by the end of the fourth calendar quarter since the last linearity test, then the linearity test must be completed within a 168 unit operating hour or stack operating hour grace period...following the end of the fourth successive elapsed calendar quarter, or data from the CEMS (or range) will become invalid."

For RATAs: Appendix B to Part 75 states in Section 2.3.1.1(a) that "If a RATA has not completed by the end of the eighth calendar quarter since the quarter of the last RATA, then the RATA must be completed within a 720 unit (or stack) operating hour grace period...following the end of the eighth successive elapsed calendar quarter or data from the CEMS will become invalid."

References: Appendix B, Sections 2.2.3 and 2.3.1.1

Key Words: Deadlines, Linearity, RATAs

History: First published in October 1999 Revised Manual

Question 8.29

Topic: Time Per RATA Run

Question: For a Part 75 RATA, what is the minimum acceptable time per run?

Answer: Section 6.5.7 in Appendix A to Part 75 specifies that the minimum RATA run time is 21 minutes for a gas monitoring system or moisture monitoring system RATA and 5 minutes for a flow RATA. Note that the 21-minute run time for moisture system RATA appears to conflict with Sections 2.2.2 and 3.2.2 of EPA Reference Method 4 (RM4) in Appendix A of 40 CFR 60. On one hand, Section 2.2.2 of RM4 requires collection of a minimum sample volume of 21 scf at a rate no greater than 0.075 scfm, when regular Method 4 is used, which equates to a sampling time of 28 minutes. On the other hand, when Approximation Method 4 (midget impinger technique) is used, section 3.2.2 of RM 4 caps the sample volume at approximately 30 liters of gas, collected at a rate of 2 liters/min, which equates to a sample time of 15 minutes. The Acid Rain Program allows either regular Method 4 or Approximation Method 4 to be used as the reference method for moisture RATA testing. Therefore, when RM 4 is used for Acid Rain Program applications, determine the appropriate sample collection time (21 minutes, 28 minutes, or 15 minutes) as follows:

- (1) When regular Method 4 is used for a Part 75 moisture monitoring system RATA, the minimum acceptable time per RATA run is 21 minutes, as stated in Section 6.5.7 of Appendix A to Part 75. To meet this requirement, concurrent data must be collected with the CEMS and with the Method 4 sampling train for at least 21 minutes. The Method 4 sample collection time of 21 minutes, although less than the 28 minutes specified in Section 2.2.2 of Method 4, is consistent with Section 7.1.1 of Performance Specification No. 2 (PS No. 2) in Appendix B to 40 CFR 60, which states, in reference to reference method sampling for RATA applications, "...For integrated samples (e.g., Methods 6 and 4), make a sample traverse of at least **21 minutes**, sampling for 7 minutes at each traverse point...".
- (2) When Approximation Method 4 is used for a Part 75 moisture monitoring system RATA, the minimum acceptable time for each RATA run is also 21 minutes. Collect the RM and CEMS data concurrently, with the understanding that in this case only the CEMS data can be collected for the full 21 minute period, because the recommended sampling time for Approximation Method 4 (as specified in Section 3.2.2 of Method 4) is about 15 minutes.
- (3) When Reference Method 4 data are used for gas monitoring system RATAs, to correct pollutant and diluent concentrations for moisture, either perform the moisture sampling concurrently with the pollutant and diluent concentration measurements as described in (1) or (2), above, or follow the guideline in Section 6.5.7 of Appendix A to Part 75, which allows non-concurrent collection of the pollutant/diluent data and auxiliary data such as moisture, provided that for each RATA run, all necessary data are obtained within a 60 minute period. However, if the moisture data and the pollutant/diluent data are collected non-concurrently, the moisture sample collection time must be in accordance with Section 2.2.2 or 3.2.2 of Method 4, as applicable.

References: 40 CFR Part 60, Appendix A (RM 4, Sections 2.2.2 and 3.2.2), Appendix B (PS 2, Section 7.1.1); 40 CFR Part 75, Appendix A, Section 6.5.7

Key Words: RATAs, Reference methods

History: First published in October 1999 Revised Manual

Question 8.30

- Topic:** Flow RATA Performance Specification
- Question:** How does the change to the flow RATA performance specification affect out-of-control status? If I passed a flow RATA at 12% in October of 1999, is the monitor out-of-control as of January 1, 2000 when the 10% specification takes effect?
- Answer:** No. If you tested and met the 15% standard in place in October, 1999, then the flow monitor would not be out-of-control on January 1, 2000. If you fail to meet the new 10% standard in a RATA completed on or after January 1, 2000 the flow monitor would be out-of-control.
- References:** Appendix A, Section 3.3.4
- Key Words:** Flow monitoring, RATA
- History:** First published in March 2000, Update #12

Question 8.31

- Topic:** RATA Frequency
- Question:** If I usually do RATA testing in the second quarter but one year I use the grace period and do the RATA in the third quarter, should I do the next RATA in the second or third quarter the following year? (The unit operates more than 168 hours each quarter and the RATA results allow an "annual" frequency.)
- Answer:** You should do the next RATA in the second quarter (see Appendix B, Section 2.3.3(c)). The grace period cannot be used to extend the deadline for the next required QA test.
- References:** Appendix B, Section 2.3.3(c)
- Key Words:** RATA
- History:** First published in March 2000, Update #12

Question 8.32

- Topic:** SO₂ RATA Exemption
- Question:** Our facility can burn #6 oil but doesn't -- we burn only natural gas. Can we take advantage of the SO₂ RATA exemption?
- Answer:** Yes. You may claim either: (1) an on-going exemption from SO₂ RATAs if your Designated Representative certifies that you never burn fuel with a sulfur content higher than "very low sulfur fuel" (as defined in § 72.2); or (2) a conditional exemption from SO₂ RATAs if you keep the usage of oil to 480 hours or less per year. In EDR v2.1, RT 697 is used to make these types of claims.
- References:** § 75.21(a)(9)
- Key Words:** RATA
- History:** First published in March 2000, Update #12

Question 8.33

- Topic:** Operating Level Definitions
- Question:** Can you clarify the definitions of the "low," "mid," and "high" operating levels in Section 6.5.2.1 of Appendix A to Part 75? Specifically, at the boundaries between adjacent levels, is 30.0% part of the low or mid level? Is 60.0% part of the mid or high level?
- Answer:** The "low" operating level extends from 0.0 to 30.0% of the range of operation, inclusive. The "mid" level is defined as >30.0% and ≤60.0% of the range of operation. The "high" level is defined as >60.0% of the range of operation. These boundary conditions were incorrectly represented in the August 16, 1999 revised EDR v2.1 and the accompanying reporting instructions (see instructions for RT 695). EPA has corrected this error in the January 20, 2000 revised EDR v2.1 and accompanying instructions.
- References:** Appendix A, Section 6.5.2.1(b)

Key Words: Flow monitors

History: First published in March 2000, Update #12

Question 8.34

Topic: Range of Operation

Question: The range of operation as defined in Section 6.5.2.1 of Appendix A to Part 75 extends from the "minimum safe, stable load" to the "maximum sustainable load." What is meant by the "minimum safe, stable load"?

Answer: The minimum safe, stable load is not precisely defined in either Part 72 or Part 75 of the Acid Rain rules. In the absence of such a definition, use the following guidelines: the minimum safe, stable load is the lowest load at which a unit is capable of being held for an extended period of time, without creating an unsafe or unstable operating condition. If the boiler manufacturer recommends that the unit not be operated below a certain load level, this may be used as the minimum safe, stable load. If such a recommendation is unavailable, you may use sound engineering judgment, based on a knowledge of the historical operation of the unit, to estimate the minimum safe, stable load. In making this determination, you may exclude low unit loads recorded during startup or shutdown while the unit is "ramping up" or "ramping down," unless these loads are able to be sustained and safely held for several hours at a time.

References: Appendix A, Section 6.5.2.1(b)

Key Words: Flow monitors

History: First published in March 2000, Update #12

Question 8.35

Topic: Load Analysis

Question: The historical load analysis described in Appendix A, Section 6.5.2.1(c) requires us to use the "past four representative operating quarters" in the analysis. Does this refer to complete calendar quarters only, or can we use a calendar year of data (365 days) that begins and ends in the middle of a quarter? If we perform the analysis in the fourth

quarter of the year, can we simply use the data from the time we perform the analysis back to the beginning of that calendar year?

Answer: The historical load analysis must include the four most recent *complete* operating quarters that represent typical operation of the unit. If you perform the analysis in the middle of a quarter, you may include data from the current quarter; however, the historical look back must include load data from the previous four complete, representative operating quarters. In some cases, a facility may need to consider more than the past four quarters of data to identify four complete operating quarters that are representative of typical operation.

References: Appendix A, Section 6.5.2.1(c)

Key Words: RATAs, Recordkeeping

History: First published in March 2000, Update #12

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SECTION 9

BIAS

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Question 9.1 **REVISED**

Topic: RATA Testing Frequency Limitation -- Bias Adjustment

Question: In Appendix B, two tests are allowed to reduce RATA frequency. Are two tests allowed to reduce the bias adjustment factor as well?

Answer: Whereas the original Part 75 rule limited the owner or operator to two RATA attempts to obtain a more favorable relative accuracy percentage or bias adjustment factor (BAF), Section 2.3.1.4 in Appendix B of the revised rule (May 26, 1999) allows as many RATA attempts as are needed to obtain the desired % RA or BAF. The only condition is that the data validation procedures in Section 2.3.2 of Appendix B must be followed.

References: Appendix A, Section 7.6.5

Key Words: Bias, Frequency incentives, RATAs

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 9.2 **REVISED**

Topic: Bias Test -- Retesting

Question: Section 75.61(a)(1)(iii) allows the owner or operator to retest immediately, without notification, in cases of a failed certification test. Does this apply in the case of bias tests as well as RATAs? Are there any restrictions as to how soon retesting should commence?

Answer: If a certification test results in a requirement that a bias adjustment factor be used, then the owner or operator of the affected unit may retest immediately. EPA does not intend to place restrictions on the timing of retests performed in order to eliminate the need for the use of a bias adjustment factor. In many cases, the failure of a bias test will be known when stack testing personnel are still on site, and requiring a pretest notification for testing performed to improve bias test results would cause needless and costly delays in the testing.

References: § 75.61(a)(1)(iii)

Key Words: Bias, Notice

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

SECTION 10

SPAN, CALIBRATION, AND LINEARITY

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Question 10.1 **REVISED**

Topic: Span

Question: If the maximum potential SO₂ concentration, when multiplied by 1.25 (rounded up to the nearest 100 ppm), equals a span value of 3,100 ppm, would the source be allowed to use a full-scale range value of 3,000 ppm and if so, what value would the gas cylinder concentrations be based on?

Answer: In the example cited, the full-scale range may not be set at 3,000 ppm, because Section 2.1.1.3 in Appendix A to Part 75 states that the owner or operator must "select the full-scale range of the instrument to be consistent with section 2.1 of this appendix and to be greater than or equal to the span value." Thus, using a monitor with a full-scale range of 3,000 ppm (i.e., 100 ppm less than the calculated span value) is not acceptable. For a span value of 3,100 ppm, the minimum acceptable full-scale range is 3,100 ppm.

Note: In the May 26, 1999 revisions to Part 75, the method of calculating the SO₂ span value was modified. Rather than requiring the maximum potential concentration (MPC) to be multiplied by 1.25, the revised rule allows a multiplier anywhere in the range from 1.00 to 1.25 to be used. Therefore, in the present example, if a span value of 3,000 ppm could be obtained by using an allowable multiplier, the full-scale range could be set at 3,000 ppm.

The required cylinder gas concentrations for daily calibration error tests and linearity checks are always determined in the same way (i.e., as percentages of the span value), in accordance with Section 5.2 of Appendix A.

References: Appendix A, Sections 2.1.1.3 and 5.2

Key Words: Calibration gases, Span

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 10.2 **REVISED**

Topic: Zero Air

Question: What is zero air material?

Answer: Zero air material is a commercially produced gas that does not contain a significant amount of the gases being measured (SO₂, NO_x, or CO₂) or other interfering gases. It is defined under 40 CFR Part 72 as: "(1) a calibration gas certified by the gas vendor not to contain concentrations of SO₂, NO_x, or total hydrocarbons above 0.1 parts per million (ppm), a concentration of CO above 1 ppm or a concentration of CO₂ above 400 ppm; (2) Ambient air conditioned and purified by a CEMS for which the CEMS manufacturer or vendor certifies that the particular CEMS model produces conditioned gas that does not contain concentrations of SO₂, NO_x, or total hydrocarbons above 0.1 ppm, a concentration of CO above 1 ppm, or a concentration of CO₂ above 400 ppm; (3) For dilution-type CEMS, conditioned and purified ambient air provided by a conditioning system concurrently supplying dilution air to the CEMS; or (4) A multicomponent mixture certified by the supplier of the mixture that the concentration of the component being zeroed is less than or equal to the applicable concentration specified in paragraph (1) of this definition, and that the mixture's other components do not interfere with the CEM readings."

Essentially, this definition establishes the maximum allowable concentrations of SO₂, NO_x, THC, CO, and CO₂ contained in the gas used for calibration at the zero-level. It is EPA's intention that the zero air material contain not more than the traceable concentrations for each pollutant listed in the definition.

If the CEM vendor provides a certification that the CEM system design (design must include identification of adequate quality assurance and quality control procedures) ensures that purified ambient air used for the zero-level check will meet these specifications, then, as long as the owner or operator implements the identified QA/QC procedures, purified ambient air may be used. If the utility purchases zero air material contained in a cylinder, then the necessary certification would be provided by the calibration gas vendor.

References: § 72.2

Key Words: Calibration gases

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 10.3 **REVISED**

Topic: Daily Calibration Test -- Zero-level Check

Question: Must a zero air material be used to perform the zero check required as part of the daily calibration test under Part 75?

Answer: Qualified no. A utility is only required to use a calibration gas that provides a zero-level *concentration* as specified by 40 CFR Part 75, Appendix A, Sections 5.2.1 and 6.3.1. A zero-level concentration can be anywhere from 0.0% to 20.0% of the span value. Therefore, a zero air material is not required unless the selected zero-level concentration is 0.0% of span. When the selected zero-level concentration is 0.0% of span, a zero air material that meets the revised definition in § 72.2 must be used (see Question 10.2). Note that under the revised definition, a zero air material may be an EPA Protocol gas mixture that does not contain the component being zeroed. For instance, a Protocol gas containing 200 ppm NO in N₂ could be used to provide a zero-level concentration for an SO₂ pollutant concentration monitor.

References: Appendix A, Sections 5.1.6, 5.2.1, and 6.3.1; Appendix B, Section 2.1.1

Key Words: Calibration gases

History: First published in May 1993, Update #1; revised July 1995, Update #6; revised in October 1999 Revised Manual

Question 10.4 **REVISED**

Topic: Calibration Gases

Question: May I use my calibration gas from daily calibration error tests for a quarterly linearity check?

Answer: Yes. The same cylinder of calibration gas used for daily calibration error tests may be used for a quarterly linearity check.

References: Appendix A, Section 6.2; Appendix B, Section 2.2.1

Key Words: Calibration gases, Linearity

History: First published in May 1993, Update #1; revised July 1995, Update #6; revised in October 1999 Revised Manual

Question 10.5 REVISED

Topic: Calibration Error Test -- Differential Pressure Flow Monitors

Question: How should differential pressure flow monitors perform the calibration error test (Part 75, Appendix A, Section 2.2.2.1)?

Answer: In part, Appendix A, Section 2.2.2.1 states: "Design and equip each flow monitor to allow for a daily calibration error test consisting of at least two reference values: (1) Zero to 20% of span *or an equivalent reference value (e.g., pressure pulse or electronic signal)* and (2) 50 to 70% of span" (emphasis added). For differential pressure flow monitors, the above quote means that the 7-day and daily calibration error tests may be performed in units of ? P (e.g., inches of water).

For initial certification or recertification of a differential pressure-type flow monitor, the allowable calibration error (in inches of H₂O) in a 7-day calibration error test is therefore 3.0% of the "calibration span value" (i.e., the ? P value that is equivalent to the velocity span value (in wet, standard ft/min) from Section 2.1.4 of Appendix A to Part 75). The results are also acceptable if the absolute value of the difference between the flow monitor response and the reference signal value (i.e., * R - A * in Equation A-6) does not exceed 0.01 in. H₂O.

The control limits for daily operation of a differential pressure-type flow monitor are $\pm 6.0\%$ of the calibration span value (see Section 2.1.4 of Appendix B). The results of a daily calibration error test are also considered acceptable if the absolute value of the difference between the monitor response and the reference signal value does not exceed 0.02 inches H₂O.

References: Appendix A, Sections 2.1.4 and 2.2.2.1

Key Words: Calibration error, Differential pressure flow monitors

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 10.6 **REVISED**

Topic: Span Adjustment Methods

Question: Our tangentially fired boiler's NO_x emissions typically have a concentration of 200 ppm. This coal-fired unit has no emission controls. Sections 2.1, 2.1.2.1, and 2.1.2.2 of Appendix A to Part 75 seem to require a span of 1,000 ppm for all coal-fired units for a high scale range and also a low scale closer to the actual concentration. Do we need to install both a high-scale range of 1,000 ppm or greater and a low-scale range?

Answer: No. The original Part 75 rule did specify a maximum potential concentration (MPC) of 800 ppm and a span of 1,000 ppm for coal-fired units, and also appeared to require a second, low measurement range when concentrations were expected to be consistently less than 25% of the high range. However, it was never EPA's intent to require two span values for uncontrolled units. Subsequent revisions to Part 75 Appendix A have clarified that a single, high NO_x span value and a single, appropriately-sized full-scale high range value are the only requirements for an uncontrolled unit.

Revised Section 2.1.2.1 of Appendix A provides the utility with four options to determine an appropriate maximum potential concentration (MPC) for NO_x. Two of the options are rather prescriptive (*i.e.*, for the unit described, either use 800 ppm or select the MPC value of 460 ppm for T-fired units from Table 2-1); however, the other two options allow site-specific MPC determination, using either stack testing results or historical CEM data. For the unit described in this example (an uncontrolled T-fired coal-fired unit with average NO_x concentrations around 200 ppm), the site-specific options would be more representative than the prescriptive options.

Once an appropriate MPC value has been established, the span value is determined by multiplying the MPC by a factor of 1.00 to 1.25. The full-scale range is then set greater than or equal to the span value and (in accordance with Section 2.1 of Appendix A) is selected such that the majority of the readings during normal operation will fall between 20% and 80% of full-scale.

References: Appendix A, Sections 2.1, 2.1.2.1, and 2.1.2.2

Key Words: Dual-range monitors, NO_x monitoring

History: First published in August 1994, Update #3; revised in October 1999 Revised Manual

Question 10.7 **REVISED**

- Topic:** Daily Calibration Test and Validation of Emissions Data
- Question:** What are the requirements of Part 75 and what is EPA's policy on validation of emissions data if a daily calibration test was not performed during a calendar day in which a unit shuts down?
- Answer:** See Question 10.13, which discusses the data validation requirements of Part 75 pertaining to daily calibration error tests and provides supplementary policy guidance.
- References:** Appendix B, Section 2.1.5
- Key Words:** Calibration error, Reporting
- History:** First published in November 1994, Update #4; revised March 1995, Update #5; revised in October 1999 Revised Manual

Question 10.8 **REVISED**

- Topic:** Requirements Resulting from Span Changes
- Question:** If I change the span value for a unit or common stack, how do I notify EPA of the change? What hardware tests should I perform and report for instruments if the span changes and if span changes affect the range of the instrument?
- Answer:** When you change the span associated with a unit or common stack you must submit a revised monitoring plan in electronic format to EPA Headquarters as part of the appropriate quarterly report. Periodic evaluation of the reported emissions data is required (once a year, at a minimum), to ensure that the current span and range values are still appropriate (see Appendix A, Sections 2.1.1.5, 2.2.2.5, 2.1.3.2, and 2.1.4.3). If a span change is necessary, it must be made within 45 days of the end of the quarter in which the need to change the span is identified, except that up to 90 days after the end of the quarter are allowed in cases where the span change requires new calibration gases to be ordered.
- Submit the electronic record of each span change to EPA Headquarters in RT 530, in the report for the quarter in which the change is made. In addition to submitting monitoring plans in the quarterly report, the agency is developing a procedure that will allow sources to submit monitoring plans electronically outside of the quarterly report.

Also report in RT 530 any range adjustment associated with the span change. EPA requests that utilities clearly identify the effective date of the change in span in RT 530. EPA may require resubmittal of quarterly reports and may require reported emission data to be replaced with substitute data if the span value in the monitoring plan does not agree with the span values used and reported as the basis for daily calibration and linearity checks.

Whenever making a change to the span value, perform a linearity check for gas concentration monitors (unless the span change is not great enough to require new calibration gases to be ordered) and perform a calibration error test for flow monitors. The new span value may not be used until the required linearity check or calibration error test has been successfully completed (see the data validation procedures in § 75.20(b)(3)).

Some types of modifications to the monitor resulting from span and range adjustments will require full recertification of the CEMS. For example, if the measurement cell is changed, or the reference filters are changed in an NDIR type of component, a complete set of recertification tests is required.

References: § 75.20(b)(3); Appendix A, Sections 2.1.1.5, 2.2.2.5, 2.1.3.2, and 2.1.4.3

Key Words: Monitoring range, Reporting, Span

History: First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 10.9 RENUMBERED AS QUESTION 14.30

Question 10.10 REVISED

Topic: Rounding Conventions for NO_x and SO₂ Span

Question: When a particular utility measured its NO_x emissions, the concentration was between 70 ppm and never was higher than 247 ppm. One hundred twenty five percent of this value (*i.e.*, of 247 ppm) gives a span concentration of 309 ppm. Appendix A would appear to require the span concentration to be rounded up to 400 ppm. However, the monitor range is 375 ppm. May the utility round up the span concentration to the

nearest 10 ppm (310 ppm) instead of the nearest hundred ppm for such a low maximum potential concentration (MPC)?

Answer: Yes. The original Part 75 rule had required the span concentration to be rounded upward to the next highest multiple of 100 ppm, to obtain the span value. However, this was based upon the assumption that the MPC would be at least 400 ppm. Because this is not always true, subsequent revisions to Part 75 have clarified that when the span concentration is # 500 ppm, rounding upward to the next highest multiple of 10 ppm is acceptable.

References: Appendix A, Sections 2.1.1.3 and 2.1.2.3

Key Words: NO_x monitoring, SO₂ monitoring, Span

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 10.11 REVISED

Topic: Reporting Requirements for Calibrations

Question: A CEM performs multiple calibration error tests in one day. May the utility simply report any failed tests and the last test and omit other passed tests?

Answer: No. Report all daily calibration error test results in time order.

References: § 75.59, § 75.64; Appendix B, Sections 2.1.1 and 2.1.6

Key Words: Calibration error, Quality assurance, Reporting

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 10.12 REVISED

Topic: Calibration of Oil Flowmeters

Question: Has EPA approved any alternatives to ASME MFC-9M, "Measurement of Liquid Flow in Closed Conduits by Weighing Method" in calibration of Appendix D oil flowmeters?

Answer: Yes. The original January 11, 1993 version of Appendix D specified only one method, ASME-MFC-9M, by which to calibrate an oil flowmeter. Since then, EPA has revised Appendix D several times. Included among these revisions has been the incorporation of a number of alternative procedures for oil fuel flowmeter calibration. Specifically, the following alternative procedures have been incorporated by reference into Section 2.1.5.1 of Appendix D, and may be used as applicable to the type of flowmeter being calibrated: (1) ASME MFC-3M-1989, with September, 1990 Errata ("Measurement of Fluid Flow in Pipes, Using Orifice, Nozzle and Venturi"); (2) ASME-MFC-5M-1985 ("Measurement of Liquid Flow in Closed Conduits Using Transit-Time Ultrasonic Flowmeters"); (3) ASME MFC-6M-1987, with June, 1987 Errata ("Measurement of Fluid Flow in Pipes Using Vortex Flow Meters"); (4) ISO 8316: 1987(E) "Measurement of Liquid Flow in Closed Conduits—Method by Collection of the Liquid in a Volumetric Tank"; and (5) American Petroleum Institute (API) Section 2, "Conventional Pipe Provers" and API Section 5, "Master-Meter Provers", from Chapter 4 of the Manual of Petroleum Measurement Standards, October, 1988 (Reaffirmed, 1993).

In addition to these regulatory alternatives, EPA has approved an NIST traceable Standing Start Finish weighing method as a specific alternative to ASME MFC-9M, in response to a petition under § 75.66.

ASME MFC-9M, a static weighing method, is a fuel flowmeter calibration method that compares the mass flow through a flowmeter to mass measured by a NIST approved scale.

The Standing Start Finish weighing method can be used in calibration of fuel oil flowmeters because:

- (1) Both ASME MFC-9M and Standing Start Finish methods use weight tank systems calibrated using NIST approved equipment.
- (2) Both ASME MFC-9M and Standing Start Finish methods account for the difference in the buoyancy of air exerted in the fluid mass.

The two methods differ only in that ASME MFC-9M utilizes a diverter valve and manual timing systems, while the Standing Start Finish method uses an automatic internal quartz clock and a digital totalizer. In either case, the scale is verified regularly using NIST standards.

If a unit uses the method above, the utility must notify EPA of the procedures and equipment being used at a particular unit as part of the certification application.

If EPA approves other alternative oil flowmeter calibration methods, the Agency will update this question and answer.

References: § 75.66(c); Appendix D, Sections 2.1.5.1

Key Words: Calibration error, Excepted methods, Oil-fired units

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 10.13 REVISED

Topic: Daily Calibration Error Test -- Data Validation

Question: What is EPA's policy on validation of emissions data based on the daily calibration error test?

Answer: The following paragraphs summarize the provisions of Part 75 pertaining to data validation for daily calibration error tests (see Appendix B, Sections 2.1 through 2.1.5) and provide supplementary policy guidance for the implementation of those provisions.

Part 75 Rule Provisions

General Provisions: Daily calibration error tests of each continuous monitor used to report data under Part 75 are required. Additional calibration error tests are required whenever: (1) a calibration error test is failed; (2) a monitor returns to service after corrective maintenance or repair; and (3) following certain allowable calibration adjustments (see Section 2.1.3 of Appendix B).

A passed daily calibration test *prospectively* validates data from a continuous monitor for 26 clock hours (24 hours plus a 2-hour grace period), unless another calibration test is failed within that period. Therefore, in order to report quality-assured data from a monitor, the data must be obtained within the 26 hour data validation window of a prior, passed daily calibration error test. Once a 26 hour data validation window has expired, data from the monitor are considered invalid until a subsequent calibration error test is passed. The only exception to this general rule is a grace period allowed for start up events (see discussion of grace period, below).

When a daily calibration test is failed, the data from that monitor are prospectively invalidated, beginning at the time of test failure and ending when a subsequent daily calibration test is passed.

On-line vs. Off-line Calibration: The basic requirement of Part 75 is that calibration error tests must be done on-line (i.e., with the unit operating), at typical operating conditions (see Section 2.1.1.1 of Appendix B). However, if a monitor is able to pass an off-line calibration error test demonstration in accordance with Section 2.1.1.2 of Appendix B, then the limited use of off-line calibration error tests for data validation is permitted for that monitor. Note that even if a monitor passes the off-line calibration demonstration, on-line calibration error tests of the monitor are still required, at a minimum, once every 26 unit operating hours.

Startup Grace Period: For a monitor that is not able to qualify to use an off-line calibration error test to validate data, an 8-hour startup grace period is available. To qualify for a startup grace period, there are two requirements:

- (1) Following an outage of one or more hours, the unit must be in a startup condition and a startup event must have begun, as evidenced in RT 300 by a change in unit operating time from zero in one clock hour to a positive unit operating time in the next clock hour.
- (2) For the monitor used to validate data during the grace period, an **on-line** calibration error test of the monitor must have been completed and passed no more than 26 clock hours prior to the unit outage.

If both of the above conditions are met, then a startup grace period of up to 8 clock hours is allowed before an on-line calibration error test of the monitor used to validate data during the grace period is required. During the startup grace period, data generated by the CEMS are considered valid. A startup grace period ends when either: (1) an on-line calibration error test of the monitor is completed; or (2) 8 clock hours have elapsed from the beginning of the startup event, whichever occurs first.

Supplementary Policy Guidance

Use the following additional guidelines to implement the calibration error provisions of Part 75:

- (1) A valid calibration error test consists of a set of consecutive, passing zero and upscale calibrations performed within the same clock hour or adjacent clock hours.
 - (a) Do not report a partial calibration error test unless the partial test fails to meet the calibration error specification, in which case, treat it as a failed test.

- (b) If either the zero or upscale portion of a *completed* calibration error test fails, the monitor is considered to be out-of-control at the time of failure of the zero or upscale calibration.
- (2) If more than one zero or upscale calibration is reported in a given clock hour, report the calibrations in time order (the order in which the calibrations were conducted).
- (3) A passed calibration error test may be used to *prospectively* validate data for the hour in which it is performed only if, after completion of the test, the minimum data requirements of § 75.10(d)(1) are met for the clock hour (*i.e.*, following the calibration error test, at least one valid data point is obtained in each of two (or more) 15-minute quadrants of the hour).
- (4) A passed calibration error test may not be used to validate data if the monitor is out-of-control with respect to any of its required quarterly, semiannual or annual quality assurance tests.
- (5) When a significant change is made to a monitoring system or when a monitor is repaired and additional recertification or diagnostic tests are required to demonstrate that the monitor is back in-control, a passed calibration error test may, in accordance with the provisions of § 75.20(b)(3), be used as a "probationary calibration error test" to initiate a period of "conditionally valid data" (see definitions in § 72.2) until the required recertification or diagnostic tests are completed. [See also similar provisions in § 75.20(d) and Section 2.2.5.3 of Appendix B].
- (6) A start-up event that commences within the grace period of a previous start-up event does **not** qualify for a grace period of its own. In addition, the hours of unit downtime prior to the second startup event count toward the 8-hour grace period total (see Example 10, below).
- (7) In certain instances, one or more clock hours within the 8-hour window of a start-up grace period may coincide (overlap) with clock hours that are within a 26-hour window associated with a previous on-line calibration error test. In such instances, CEM data validation is governed by whichever window (*i.e.*, the 8-hour grace period or the 26-hour calibration window) expires **last** (see Example 10, below).

DETAILED EXAMPLES

The following examples illustrate data validation for **on-line** calibration error tests and the use of a start-up grace period. The examples assume that for the hour in which a calibration error test is passed, sufficient valid data are collected *after* the calibration error test to validate data for that hour. In other words,

the hour in which the calibration error test is passed is considered to be the first hour in the 26 clock hour window of data validation associated with the calibration error test.

KEY FOR EXAMPLES:

P - The monitor passed a particular zero or upscale calibration

F - The monitor failed a particular zero or upscale calibration

Y - Yes, the monitor passed the calibration error test

N - No, the monitor failed the calibration error test

In examples 1 through 5 below, assume that the unit has been operating for some time, and that on **Day 1** a daily calibration was **passed** at **7 am**, (validating data from Day 1, hour 7 through Day 2, Hour 8, and that no calibration error test is failed in that interval).

<u>EX#</u>	<u>DAY</u>	<u>HOUR</u>	<u>ZERO</u>	<u>HIGH</u>	<u>PASSED TEST?</u>	<u>DATA VALIDATION STATUS</u>
1.	Day 2	Hour 7	P	P	Y	VALID (C.E. Test passed) Day 2 Hr 7 <u>thru</u> Day 3 Hr 8
2.	Day 2	Hour 7 Hour 8	P	P	Y	VALID (within 26-hr window) VALID (C.E. Test passed) Day 2 Hr 8 <u>thru</u> Day 3 Hr 9
3.	Day 2	Hour 7 Hour 8 Hour 8	F P	P	N Y	INVALID (C.E. Test Failed) VALID (C.E. Test passed) Day 2 Hr 8 <u>thru</u> Day 3 Hr 9

<u>EX#</u>	<u>DAY</u>	<u>HOUR</u>	<u>ZERO</u>	<u>HIGH</u>	<u>PASSED TEST?</u>	<u>DATA VALIDATION STATUS</u>
4.	Day 2	Hour 7	F		N	INVALID (C.E. Test Failed)
		Hour 8	P			
		Hour 8	F	N		
		Hour 8	P	N		INVALID (note: injections must be passed consecutively)
5.	Day 2	Hour 7	P			VALID (within 26-hr window)
		Hour 8		P	Y	VALID (C.E. Test passed) Day 2 Hr 8 <u>thru</u> Day 3 Hr 9
	Day 3	Hour 7	--	--	--	VALID (within 26-hr window)
		Hour 8	--	--	--	VALID
		Hour 9	--	--	--	VALID
		Hour 10	--	--	--	INVALID (26 hr window expired)
		Hour 11	--	--	--	INVALID
		Hour 12	P			INVALID
		Hour 13		P	Y	VALID (C.E. Test passed) Day 3 Hr 13 <u>thru</u> Day 4 Hr 14
	Day 4	Hour 7	F		N	INVALID (C.E. Test Failed)
		Hour 8	P			
		Hour 8		P	Y	VALID (C.E. Test passed) Day 4 Hr 8 <u>thru</u> Day 5 Hr 9

Assume for examples 6 through 10, below that the unit has been off-line for several days, that the last on-line calibration error test was passed 18 hours before the hour of unit shutdown, and that the unit begins operation on Day 1 at 1:01 am, during Hour 1. The unit therefore qualifies for a start-up grace period:

<u>EX#</u>	<u>DAY</u>	<u>HOURL</u>	<u>ZERO</u>	<u>HIGH</u>	<u>PASSED TEST?</u>	<u>DATA VALIDATION STATUS</u>
6.	Day 1	Hour 1	--	--	--	VALID (start-up grace period)
		Hour 2	--	--	--	VALID
		Hour 3	--	--	--	VALID
		Hour 4	--	--	--	VALID
		Hour 5	--	--	--	VALID
		Hour 6	--	--	--	VALID
		Hour 7	--	--	--	VALID
		Hour 8	P			
		Hour 8		P	Y	VALID (C.E. Test passed)
						Day 1 Hr 8 <u>thru</u> Day 2 Hr 9
7.	Day 1	Hour 1	--	--	--	VALID (start-up grace period)
		Hour 2	--	--	--	VALID
		Hour 3	--	--	--	VALID
		Hour 4	--	--	--	VALID
		Hour 5	--	--	--	VALID
		Hour 6	--	--	--	VALID
		Hour 7	--	--	--	VALID
		Hour 8	--	--	--	VALID
		Hour 9	--	--	--	INVALID (grace period expired)
		Hour 10	P			
		Hour 10		P	Y	VALID (C.E. Test passed)
						Day 1 Hr 10 <u>thru</u> Day 2 Hr 11
8.	Day 1	Hour 1	--	--	--	VALID (start-up grace period)
		Hour 2	--	--	--	VALID
		Hour 3	--	--	--	VALID
		Hour 4	--	--	--	VALID
		Hour 5	P			
		Hour 5		F	N	INVALID (C.E. Test Failed)
		Hour 6	F		N	
		Hour 6	P		N	INVALID (C.E. Test Failed)
		Hour 7		P	Y	VALID (C.E. Test passed)
						Day 1 Hr 7 <u>thru</u> Day 2 Hr 8

<u>EX#</u>	<u>DAY</u>	<u>HOURL</u>	<u>ZERO</u>	<u>HIGH</u>	<u>PASSED TEST?</u>	<u>DATA VALIDATION STATUS</u>
9.	Day 1	Hour 1	--	--		VALID (start-up grace period)
		Hour 2	--	--	--	VALID
		Hour 3	--	--	--	VALID
		Hour 4	--	--	--	VALID
		Hour 5	--	--	--	VALID
		Hour 6	--	--	--	VALID
		Hour 7	--	--	--	VALID
		Hour 8	--	--	--	VALID (end of grace period)

Unit shuts down during Day 1 Hour 8, and unit restarts Day 2 Hour 1.

On Day 2, the unit does not meet the criteria to receive an additional 8 hour start up grace period because the original grace period ended on Day 1, Hour 8 and no valid on-line calibration error test was performed within 26 clock hours of the last hour of unit operation on Day 1.

Day 2	Hour 1	--	--	--	INVALID (no grace period)
	Hour 2	--	--	--	INVALID
	Hour 3	P			
	Hour 3		P	Y	VALID (C.E. Test passed)

Day 2 Hr 3 thru Day 3 Hr 4

10.	Day 1	Hour 1	--	--	--	VALID ^a
		Hour 2	--	--	--	VALID
		Hour 3	Unit Trip (Off-Line) ^b			
		Hour 4	--	--	--	VALID ^c
		Hour 5	Unit Trip (Off-Line) ^b			
		Hour 6	--	--	--	VALID ^c
		Hour 7	--	--	--	VALID
		Hour 8	--	--	--	VALID
		Hour 9	--	--	--	INVALID ^d
		Hour 10	P	F	N	INVALID (C.E. Test Failed)
		Hour 11	P	P	Y	VALID (C.E. Test passed)

Day 1 Hr 11 thru Day 2 Hr 12

Unit shuts down during Day 1 Hour 11 and restarts Day 2 Hour 3.

					PASSED	DATA VALIDATION
<u>EX#</u>	<u>DAY</u>	<u>HOURL</u>	<u>ZERO</u>	<u>HIGH</u>	<u>TEST?</u>	<u>STATUS</u>
10. (cont.)						
	Day 2	Hour 3	--	--	--	VALID^a
		Hour 4	--	--	--	VALID
		Hour 5	--	--	--	VALID
		Hour 6	--	--	--	VALID
		Hour 7	--	--	--	VALID
		Hour 8	--	--	--	VALID
		Hour 9	--	--	--	VALID
		Hour 10	--	--	--	VALID
		Hour 11	--	--	--	VALID^d
		Hour 12	--	--	--	VALID
		Hour 13	--	--	--	INVALID^e
		Hour 14	P	P	Y	VALID (C.E. Test passed) Day 2 Hr 14 <u>thru</u> Day 3 Hr 15

^aQualifying start-up grace period begins

^bUnit operating time in RT 300 = "0"

^cNew start-up "event" begins (Unit operating time in RT 300 = positive). No new grace period (event begins within grace period of a previous event).

^dStart-up grace period expired. However, on Day 2, the data are valid because the 26 clock hour window from the C.E. test on Day 1, Hour 11 has not expired.

^eTwenty-six hour calibration window for the C.E. test on Day 1, Hour 11 has expired.

References: Appendix B, Sections 2.1 through 2.1.5

Key Words: Calibration error, Reporting

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 10.14 RETIRED

Question 10.15 REVISED

- Topic:** Use of Instrument Air for Calibration
- Question:** May a utility use scrubbed instrument air, with an assumed O₂ concentration of 20.9% O₂, for calibration of an O₂ monitor?
- Answer:** Yes. However, the O₂ monitor span must be set greater than or equal to 21.0% O₂. Furthermore, the utility must document that the conditioned gas will not contain concentrations of other gases that interfere with instrument O₂ readings (a certification statement from the vendor of the gas scrubbing system or equipment will suffice). Also, in the QA/QC plan for the plant required by Appendix B, include routine maintenance and quality control procedures for ensuring that the instrument air continues to be properly cleaned.
- References:** § 72.2; Appendix A, Sections 2.1.3 and 5.2.4; Appendix B, Section 1
- Key Words:** Calibration gases, Diluent monitors, Span
- History:** First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 10.16 REVISED

- Topic:** Monitor Ranges for Units with Low NO_x Burners
- Question:** Are low NO_x burners installed at coal fired power plants considered to be add-on emission control devices? Would utilities with low NO_x burners in use be allowed to remove the high range of 0 - 1,000 ppm?
- Answer:** Low NO_x burners (LNB) are not considered add-on emission controls. However, as noted in Section 2.1.2.5(a) of Appendix A, installation of a low-NO_x burner is an example of a change that may require a span and range adjustment. To determine whether a new span and range are needed following the installation of a LNB, the owner or operator should examine the subsequent NO_x emission data in light of the guideline in Section 2.1 of Appendix A. Specifically, Section 2.1 states: "select the range such that the readings obtained during typical unit operation are kept, to the extent practicable, between 20.0 and 80.0 percent of the full scale range of the instrument." If the NO_x concentration readings do not consistently meet this guideline, then the span and range should be adjusted accordingly. If a span adjustment is necessary, base the maximum potential concentration (MPC) used to determine the new span value on the historical CEMS data (720 hours minimum)

collected since the installation of the LNB. If the span and range are changed, provide a monitoring plan update according to Section 2.1.2.5 of Appendix A. For daily calibration and linearity tests, calibration gases must be used that are consistent with the new span value.

References: Appendix A, Sections 2.1, 2.1.2.4, and 2.1.2.5

Key Words: Control devices, Dual-range monitors, Low NO_x burners

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 10.17 REVISED

Topic: Appendix D and E Orifice Fuel Flowmeter Calibration

Question: A utility has an orifice fuel flowmeter system with three transmitters: a differential pressure transmitter; an absolute pressure transmitter; and a temperature transmitter. The absolute pressure and temperature transmitters are used to compensate for actual conditions. The signals from all three transmitters are combined to determine standard cubic feet per minute flow rate in order to determine the accuracy of the system.

Appendix D, Section 2.1.5 requires each fuel flowmeter to meet a flowmeter accuracy of $\pm 2.0\%$ of the upper range value (URV). The utility finds it is very difficult to calibrate all three transmitters at the same time. The temperature can be as high as 300EF, the absolute pressure is 0 - 350 psig and the differential pressure is usually 0 - 100 inches of water (@3.5 psig).

So, how should the utility calibrate and calculate the accuracy of this fuel flowmeter system?

Answer: Check the calibration for the three transmitters separately. Calibrate each transmitter at the zero level and at least two other levels (e.g., mid and high), so that the full range of transmitter or transducer readings corresponding to normal unit operation is represented. The flowmeter accuracy specification of 2.0% of the URV must be met at each level tested.

If, at a particular level, the accuracy for each transmitter is less than or equal to 1.0% when calculated according to Equation D-1a in Appendix D, then the fuel flowmeter accuracy specification of 2.0% of the URV is considered to be met at that level. At each level tested, report the highest calculated accuracy for any of the transmitters in RT 628 and keep the results of the tests on the other transmitters on site.

If, at a particular level, the accuracy of one or more of the transmitters is greater than 1.0%, there are two alternative ways to demonstrate compliance with the fuel flowmeter accuracy specification of 2.0% of the URV: (1) If the sum of the calculated accuracies for the three transmitters is less than or equal to 4.0%, the results are considered acceptable; or (2) If the total fuel flowmeter accuracy is \leq 2.0% when calculated according to Part 1 of American Gas Association Report No. 3, "General Equations and Uncertainty Guidelines," the results are considered acceptable.

If the required fuel flowmeter accuracy specification of 2.0% of the URV is not met at any of the levels tested, follow the applicable procedures in Section 2.1.6.3 of Appendix D ("Failure of Transducer(s) or Transmitter(s)").

References: Appendix D, Sections 2.1.5 and 2.1.6

Key Words: Calibration error, Excepted methods, Fuel sampling

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 10.18 REVISED

Topic: Interference Checks and Data Validation

Question: Does the data validation policy for daily calibration error tests found in Policy Manual Question 10.13 also apply to daily interference checks for flow monitors?

Answer: Yes. On November 20, 1996, EPA published revisions to Part 75, which provide a startup grace period for both daily calibration error tests and for daily flow monitor interference checks. These provisions are found in Section 2.1.5.2 of Appendix B.

References: Appendix A, Section 2.2.2.2; Appendix B, Section 2.1.5.2; Question 10.13

Key Words: Flow monitoring, Quality assurance, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 10.19 REVISED

Topic: Maximum Potential Concentration

Question: Can the SO₂ and NO_x maximum concentrations be adjusted by tracking the hourly values on a 30 day basis? If so, how should these constants be represented in RT 530 of the electronic monitoring plan? Also, a stagnant value will cause the ETS-PC to have a mismatch when reading the substitution of a dynamically updated value.

Answer: No, do not adjust the maximum potential concentrations each month based upon the concentrations during the last month. The maximum potential concentration (MPC) is considered to be a long term value that will change only if there are significant changes to the fuel being burned or to the manner of unit operation, or if a required annual evaluation of the span and range values or an audit by the regulatory agency shows that an improper span value (and hence an improper MPC value) has been selected.

References: Appendix A, Sections 2.1.1.5, 2.1.2.5, 2.1.3.2, and 2.1.4.3

Key Words: Monitoring plan, NO_x monitoring, SO₂ monitoring, Span

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 10.20 RETIRED**Question 10.21**

Topic: Linearity Check for Dual Range Analyzer

Question: Our unit has a dual range analyzer but we generally use only the low range. Must we do a linearity test on the high range each quarter?

Answer: No. A linearity check is only required on the range used during the quarter. Note however that there is an upper limit of four calendar quarters between linearities at each range, so even if one range were not used at all, a linearity check must be conducted on that range at least once every four quarters (see Appendix B, Section 2.2.3(f). Also note that for SO₂ and NO_x, the new rule provides an option for using a default high range value, in lieu of operating, maintaining and calibrating a high monitor range (see Appendix A, Sections 2.1.1.4(f) and 2.1.2.4(e)).

References: Appendix A, Sections 2.1.1.4(f) and 2.1.2.4(e); Appendix B, Section 2.2.3(f)

Key Words: Dual range monitors, Linearity

History: First published in October 1999 Revised Manual

Question 10.22

Topic: Off-line Calibration Demonstration Test

Question: Is the off-line calibration demonstration a one time test?

Answer: Yes, unless you are told to repeat the test as the result of an audit or other finding. (See EDR instructions for RT 623.)

References: Appendix B, Section 2.1.1.2

Key Words: Calibration

History: First published in October 1999 Revised Manual

Question 10.23

Topic: Separation Between Linearity Checks

Question: The revised rule removes the previous requirement that RATAs be separated by four months. Is there an equivalent change for linearities (which previously had to be separated by two months)?

Answer: The revised rule now states that successive linearity checks should be separated by 30 days *to the extent practicable*.

References: Appendix B, Section 2.2.1

Key Words: Linearity

History: First published in October 1999 Revised Manual

Question 10.24

Topic:	Grace Period Linearity Check
Question:	If we utilize the grace period to perform a linearity check within the first 168 operating hours of the next quarter, does that grace period linearity count for both quarters?
Answer:	No. Each QA operating quarter has a separate linearity requirement.
References:	Appendix B, Section 2.2.4
Key Words:	Deadlines, Linearity
History:	First published in October 1999 Revised Manual

Question 10.25

Topic:	Aborted Calibration Test
Question:	We aborted the calibration error test of our gas monitor, since the zero level failed. How should such aborted calibrations be reported?
Answer:	Report the zero level results only. Do not attempt to report any default values (e.g., "999" or "XXX") to simulate a high level injection when the test is aborted after the zero level calibration. A single failed gas injection is considered to be a failed calibration error test and puts the monitor in an out-of-control status.
References:	§ 75.59(a)(1); Appendix B, Section 2.1.6
Key Words:	Calibration error, Reporting
History:	First published in October 1999 Revised Manual

Question 10.26

Topic:	Flow-to-load Test Failure -- Data Invalidation Period
Question:	If we fail a quarterly stack flow-to-load ratio test, what data are invalidated?
Answer:	The system is considered out-of-control beginning with the first hour of operation in the quarter <u>following</u> the quarter for which the quarterly stack flow-to-load ratio test failed
References:	Appendix B, Section 2.2.5(c)(8)
Key Words:	Data validity, Flow-to-load test
History:	First published in October 1999 Revised Manual

Question 10.27

Topic:	Definition of Over-scaling
Question:	Please clarify the definition of over-scaling. Is an instantaneous reading or a one minute average or a 15 minute average above the range considered a full-scale exceedance?
Answer:	<p>Over-scaling is an exceedance of the high range of a continuous monitor, as described in Appendix A, Sections 2.1.1.5 (for SO₂), 2.1.2.5 (for NO_x), and 2.1.4.3 (for flow). During hours in which the NO_x concentration, SO₂ concentration, or flow rate is greater than the analyzer's capability to measure, the owner or operator is instructed to substitute 200% of the full scale range of the instrument for that hour. This is sufficiently clear for hours in which all data recorded by a monitor are off-scale. However, the rule does not give specific instructions on how to calculate emissions during an hour in which over-scaling occurs during only part of an hour.</p> <p>There are two acceptable methods for reporting hourly data when a high scale range exceedance occurs only for part of an hour. Regardless of what method is used, the method must be implemented by the data acquisition and handling system in an automated fashion so that a value of 200% of the range is automatically substituted at the appropriate time. The two methods are outlined below:</p>

Method 1

- (1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor (i.e., the time "x" required for one complete cycle of analyzing, reading, and data recording, where "x" may be 5 seconds, 10 seconds, or 60 seconds, depending on the type of data collection used in the DAHS/CEMS).
- (2) If *any* of the fundamental readings recorded during an hour exceeds the range of the analyzer (i.e., if over-scaling occurs) then report 200% of the range for that hour and report an MODC of 20 to indicate a full scale range exceedance.

Method 2

- (1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor (i.e., the time "x" required for one complete cycle of analyzing, reading, and data recording, where "x" may be 5 seconds, 10 seconds, or 60 seconds, depending on the type of data collection used in the DAHS/CEMS).
- (2) Calculate the hourly average pollutant concentration as the arithmetic average of all fundamental data values recorded during the hour, in the following manner:
 - (a) If the fundamental reading is lower than the analyzer range, use the reading directly in the calculation of the hourly average;
 - (b) If the fundamental reading indicates a range exceedance, then substitute 200% of the range for that reading.
- (3) Report the hourly average calculated in the manner described in step (2) above as an unadjusted concentration value and use MODC 20 to indicate that a range exceedance occurred for at least part of the hour.

References: Appendix A, Sections 2.1.1.5, 2.1.2.5, and 2.1.4.3

Key Words: Monitoring range, Reporting

History: First published in October 1999 Revised Manual

Question 10.28

Topic: Dual Range Analyzers

Question: For a dual range analyzer defined as two separate components of a single monitoring system, which component ID do we report for an hour in which readings from both ranges are used to record data? How is the hourly average concentration determined?

Answer: For the case described (a dual range analyzer defined as two separate components of the same monitoring system), you may either implement Option 1 or Option 2 below, to calculate the average concentration and to determine which component ID (low scale or high scale) must be reported for an hour in which both ranges are used.

Option 1

- (1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor (i.e., the time "x" required for one complete cycle of analyzing, reading, and data recording, where "x" may be 5 seconds, 10 seconds, or 60 seconds, depending on the type of data collection used in the DAHS/CEMS).
- (2) If, during a particular hour, one or more fundamental readings are recorded on the high range, calculate the hourly average as follows:
 - (a) For all of the quality-assured fundamental readings recorded on the low scale during the hour, use the readings directly in the calculation of the hourly average;
 - (b) For the fundamental reading(s) recorded on the high range during the hour:
 - (i) If the high range is able to provide quality-assured data at the time of the reading (i.e., if the range is up-to-date with respect to its linearity check requirements and has passed a calibration error test within the last 26 clock hours), use the fundamental reading directly in the calculation of the hourly average; or
 - (ii) If the high range is not quality assured at the time of the reading, substitute the maximum potential concentration (MPC) for the reading and use the substitute value in the calculation of the hourly average (see Appendix A, Sections 2.1.1.5(b)(2) and 2.1.2.5(b)(2)).
- (3) Report data for the hour using the high range component ID.

Option 2

- (1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor as described in paragraph (1) under Option 1, above.
- (2) Calculate the hourly average pollutant concentration as described in paragraphs (2)(a) and (2)(b) under Option 1, above.
- (3) Except as noted in paragraph (5) below, if the calculated hourly average from step (2) is less than or equal to the full-scale setting of the low range, use the low range component ID to report data for the hour.
- (4) Except as noted in paragraph (5) below, if the hourly average from step (2) is greater than the full-scale setting of the low range, use the high range component ID to report data for the hour.
- (5) For some dual range CEM systems, an alarm or other mechanism causes the monitor to switch from the low range to the high range when emissions reach a pre-set level (e.g., for a low range of 200 ppm, the alarm may cause the high range to be activated when the emission level exceeds 175 ppm). For this type of system, use the low range component ID to report data for the hour if the hourly average from step (2) is less than or equal to the pre-set emission level at which the high range is activated. Use the high range component ID to report data for the hour if the calculated hourly average exceeds the pre-set emission level.

References: Appendix A, Sections 2.1.1.4, 2.1.1.5 , 2.1.2.4, 2.1.2.5

Key Words: Dual range, Reporting

History: First published in March 2000, Update #12

Question 10.29

Topic: Default High Range Value

Question: For units with dual span requirements, in lieu of operating and maintaining a high monitor range, Sections 2.1.1.4(f) and 2.1.2.4(e) of Appendix A to Part 75 allow the use of a default high range value of 200% of the MPC when the full-scale of the low range analyzer is exceeded. When the default high range option is selected, how is the hourly average SO₂ or NO_x concentration calculated? What happens when the full-scale of the low range analyzer is exceeded for only part of the hour?

Answer: To implement the default high range provision, you may use either of the following options:

Option 1

- (1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor (*i.e.*, the time "x" required for one complete cycle of analyzing, reading, and data recording, where "x" may be 5 seconds, 10 seconds, or 60 seconds, depending on the type of data collection used in the DAHS/CEMS).
- (2) If *any* of the fundamental readings recorded during an hour exceeds the full-scale of the low range analyzer, report 200% of the MPC for that hour and report a method of determination code (MODC) of "19" to indicate the use of the default high range value.

Option 2

- (1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor, as described in paragraph (1) of Option 1, above.
- (2) Calculate the hourly average pollutant concentration as the arithmetic average of all quality-assured fundamental data values recorded during the hour, in the following manner:
 - (a) If a fundamental reading is less than the full-scale of the low range analyzer, use the reading directly in the calculation of the hourly average;
 - (b) If a fundamental reading indicates that the low range is "pegged" (*i.e.*, the monitor output voltage indicates that the full-scale of the low range has been reached or exceeded), substitute 200% of the MPC for that reading and use the substituted value in the calculation of the hourly average.
- (3) Report the hourly average calculated in the manner described in step (2) above as the unadjusted pollutant concentration and report an MODC of "19" to indicate that the default high range value was used for at least part of the hour.

References: § 75.57, Table 4A; Appendix A, Sections 2.1.1.4(f), 2.1.2.4(e); EDR v2.1 Reporting Instructions, Sections III.B.(1) and III.B.(2)

Key Words: Default high range, Dual range, Reporting

History: First published in March 2000, Update #12

Question 10.30

- Topic:** Calibration Error Test Following Non-routine Calibration Adjustments
- Question:** Section 2.1.3 of Appendix B to Part 75 requires an "additional" calibration error test to be performed whenever "non-routine" calibration adjustments are made to a monitor. Section 2.2.3 of Appendix B allows non-routine adjustments prior to quarterly linearity checks. Is it necessary to perform the additional calibration error test prior to the linearity test or can this calibration error test be performed immediately after the linearity check?
- Answer:** You may perform the additional calibration error test after the linearity check rather than prior to the check. However, you must follow the data validation rules in Sections 2.1.3(a) and (c) of Appendix B associated with this calibration error test. Sections 2.1.3(a) and (c) state that following non-routine adjustments, emission data from a monitor are considered to be invalid until an additional "hands-off" calibration error test has been completed and passed, which demonstrates that the monitor is operating within its performance specifications. Therefore, if you perform the additional calibration error test after a linearity check, you must invalidate any emission data collected in the time period beginning with the non-routine adjustment of the monitor and ending at the time of successful completion of the calibration error test. In order to validate the linearity test, the calibration error test must show the monitor to be operating within its performance specification band ($\pm 2.5\%$ of span). If the calibration error test shows that the monitor is not operating within its performance specification, the linearity test is invalidated and must be repeated. Report an "A" flag in column 69 of each of the RTs 601 in the invalidated linearity test. Do not report RT 602 for this test.
- References:** Appendix B, Sections 2.1.3 and 2.2.3
- Key Words:** Calibration error
- History:** First published in March 2000, Update #12

Question 10.31

- Topic:** Linearity Check Following Span Adjustment
- Question:** If a facility changes the span of a gas monitor, is a linearity check required?
- Answer:** It depends. Sections 2.1.1.5 and 2.1.2.5 of Appendix A to Part 75 require a diagnostic linearity check to be performed following a span adjustment of a gas monitor *only if* the

span adjustment is so significant that the calibration gases currently used for daily calibration error tests and linearity checks are unsuitable for use with the new span value. For instance, suppose that the span of a NO_x monitor is 1000 ppm and the "low," "mid," and "high" calibration gases currently in use have concentrations of 250 ppm, 525 ppm, and 825 ppm, respectively. If, following a required annual span and range evaluation, the span is changed to 900 ppm, these calibration gas concentrations, expressed as percentages of the new span value, would be, respectively, 27.8%, 58.3%, and 91.6%. Since the calibration gases are still within the tolerance bands for low, mid, and high-level concentrations (i.e., 20.0-30.0% of span for low-level, 50.0-60.0% of span for mid-level, and 80.0-100.0% of span for high level), a diagnostic linearity check would not be required in this case. However, if the span had been lowered to 800 ppm or less, the current calibration gases would no longer be within the tolerance bands and a diagnostic linearity check would be required.

In cases where a span adjustment is required and the current calibration gases are unsuitable for use with the new span value, the owner or operator has up to 90 days after the end of the quarter in which the need to adjust the span is identified to implement the change (see Sections 2.1.1.5 and 2.1.2.5 of Appendix A). This allows time to purchase and receive the new calibration gases.

References: Appendix A, Section 2.1.1.5 and 2.1.2.5

Key Words: Linearity, Span

History: First published in March 2000, Update #12

Question 10.32

Topic: Diagnostic Linearity Check

Question: If, during a "QA operating quarter," a successful diagnostic linearity check is performed following a change to the span of a gas monitor, may this diagnostic linearity check be used to meet the quarterly linearity check requirement of Section 2.2.1 of Appendix B to Part 75?

Answer: Yes. This is consistent with Section 2.4 of Appendix B, which allows quality assurance tests to serve a dual purpose. In the example cited in Section 2.4, a single linearity check is used to meet a recertification requirement and to satisfy the routine quality assurance requirements of Appendix B.

In EDR v2.1, there is a new field in column 75 of RT 601 (Linearity Check Results), in which the "Reason for Test" is reported (e.g., "Q" = routine quality assurance, "D" = diagnostic, "R" = recertification, etc.). When a test is performed for a dual purpose, a two-letter code is used. In the present example, since the linearity check is done both for routine quality assurance and as a diagnostic test, the code "QD" would be reported in RT 601, column 75.

References: Appendix B, Sections 2.2.1 and 2.4; EDR v2.1, RT 601

Key Words: Linearity check, Reporting

History: First published in March 2000, Update #12

Question 10.33

Topic: Span and Range -- Annual Evaluation

Question: What must I do to comply with the provisions of Sections 2.1.1.5, 2.1.2.5, and 2.1.4.3 of Appendix A to Part 75, which require an annual evaluation of the span and range of my continuous emission monitors? Are there any other times at which span and range evaluations would be required?

Answer: To comply with the annual span and range evaluation provisions of Part 75, you must examine your historical CEMS data at least once per year to see if the current span and range values meet the guideline in Section 2.1 in Appendix A. According to that guideline, the full-scale range of a monitor must be selected so that data recorded during normal operation are kept, to the extent practicable, between 20.0 and 80.0% of full-scale. Section 2.1 also describes several allowable exceptions to the "20-to-80 percent of range" criterion.

The annual span and range evaluation may be done in any quarter of the year. At a minimum, the evaluation consists of examining all measured CEMS data (not substitute data) from the previous four calendar quarters, for each pollutant or parameter (i.e., SO₂ concentration, NO_x concentration, CO₂ concentration, and flow rate). You may also include data recorded in the quarter of the evaluation. For example, if the data analysis is performed in the fourth quarter of the year, the analysis must include all data from the 4th quarter of previous year through the 3rd quarter of the current year, and may (at the discretion of the owner or operator) include additional data from the 4th quarter of the current year.

Determine the percentage of the data that fall between 20.0 and 80.0% of full-scale and the percentage of the data that fall outside this range. The introductory text to Sections 2.1.1.5, 2.1.2.5, and 2.1.4.3 of Appendix A makes it clear that data recorded during short-term, non-representative operating conditions (such as a trial burn of a different fuel) should be excluded from the data analysis. If the majority (>50%) of the historical data are found to be within the 20.0 to 80.0% band, the current span and range values are acceptable and may continue to be used.

The results of annual span and range evaluations must be kept on-site, in a format suitable for inspection (see introductory text to Sections 2.1.1.5, 2.1.2.5, and 2.1.4.3 of Appendix A). Do not send these results to EPA.

If, for any pollutant or parameter, the results of the annual span and range evaluation fail to meet the guideline in Section 2.1 of Appendix A, Sections 2.1.1.5(a), 2.1.2.5(a), and 2.1.4.3(a) of Appendix A require that you adjust the span and range. When span and range adjustments are required, you have up to 45 days after the end of the quarter in which the need to adjust the span is identified (in this case, the quarter of the span and range evaluation) to implement the change, with one exception—for span and range changes to a gas monitor that require new calibration gases to be purchased because the current calibration gases are unsuitable for use with the new span value, you have up to 90 days after the end of the quarter of the unsatisfactory span and range evaluation to implement the span and range changes.

In addition to the annual evaluations, you may also have to conduct span and range evaluations whenever you plan to change the manner of operation of the affected unit(s), such that the emissions or flow rates may change significantly (see Sections 2.1.1.5(a), 2.1.2.5(a), and 2.1.4.3 of Appendix A). For example, installation of emission controls may require certain monitors to be re-spanned and re-ranged. You should plan any span and range changes needed to account for such changes in unit operation, so that they are made in as timely a manner as practicable to coordinate with the operational changes.

References: Appendix A, Sections 2.1.1.5(a), 2.1.2.5(a), and 2.1.4.3(a)

Key Words: Span

History: First published in March 2000, Update #12

Question 10.34

Topic:	Preapproval for Use of Mid-level Calibration Gas
Question:	If we use the new provision allowing the use of mid-level calibration gas, do we have to get preapproval?
Answer:	No, preapproval is not required.
References:	Appendix A, Section 6.3.1
Key Words:	Calibration gases
History:	First published in March 2000, Update #12

Question 10.35

Topic:	Justification for Non-routine Calibration Adjustment
Question:	What is an acceptable technical justification for a non-routine calibration adjustment? The rule states that such adjustments may be made prior to a RATA or linearity. May they also be made after any daily calibration?
Answer:	Non-routine adjustments are allowed prior to RATAs and linearities because calibration gases are only guaranteed accurate to within 2% of the tag value. For daily calibrations, users of dilution-extractive systems that are very sensitive to ambient conditions, the revised rule allows an adjustment away from the tag value (but still within the performance specification band), when it is justified on technical grounds, such as an anticipated barometric pressure change, and is part of the QA plan for the CEMS. An additional calibration error test must be performed after non-routine adjustments to demonstrate that the analyzer is still operating within its performance specifications.
References:	Appendix B, Section 2.1.3(c)
Key Words:	Calibration error, Linearity, RATA
History:	First published in March 2000, Update #12

Question 10.36

- Topic:** MPC for Units With Low NO_x Levels
- Question:** There will be many new units coming online in the Northeast with NO_x emissions controlled to very low levels. How can we determine MPC for those units? If we use the constants provided in Tables 2-1 or 2-2 of Appendix A to Part 75, we will have to revise the MPC, span, and range values once historical data has been obtained.
- Answer:** If you believe that the values in Tables 2-1 and 2-2 are unrepresentative of the maximum potential NO_x concentration for your affected unit, you may petition EPA under § 75.66 for permission to use an alternative MPC value (e.g., a reliable estimate of the uncontrolled emissions provided by the turbine manufacturer).
- References:** § 75.66
- Key Words:** NO_x monitoring
- History:** First published in March 2000, Update #12

Question 10.37

- Topic:** Effects of BAF on Full-scale Exceedance Reporting
- Question:** When full-scale exceedances of a high-scale monitoring range occur, Part 75 requires a value of 200% of the range to be reported. If the full-scale range is exceeded for only part of the hour, Policy Question 10.27 allows the hourly average to be calculated using a combination of real monitored data and the default value of 200% of the range. What happens if an hourly average SO₂ concentration calculated in this manner is multiplied by the bias adjustment factor (BAF), and gives a result greater than 200% of the range (e.g., if data are off -scale for 59 minutes of the hour and on-scale for one minute)? Will the Emission Tracking System (ETS) give an error message?
- Answer:** If the calculated hourly average SO₂ concentration times the BAF gives a result less than or equal to 200% of the range, report this result as the bias-adjusted SO₂ concentration. If the calculated SO₂ concentration times the BAF gives a result higher than 200% of the range, report 200% of the range as the bias-adjusted concentration. This will ensure that no error message is generated by ETS.

Note that when a "default high range" SO₂ value of 200% of the MPC is used for exceedances of a low-scale monitor range (as allowed under Section 2.1.1.4 (f) of Appendix A to Part 75), similar considerations apply. If the calculated hourly average SO₂ concentration times the BAF gives a result less than or equal to 200% of the MPC, report this result as the bias-adjusted SO₂ concentration. If the calculated SO₂ concentration times the BAF gives a result higher than 200% of the MPC, report 200% of the MPC as the bias-adjusted concentration (see Policy Question 10.29).

References: Appendix A, Sections 2.1.1.4(f), 2.1.1.5(b)

Key Words: Bias adjustment factor, Range

History: First published in March 2000, Update #12

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SECTION 11

OTHER QA/QC REQUIREMENTS

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Question 11.1

Topic:	QA/QC Plan
Question:	What are the specific requirements for content of a QA/QC Plan?
Answer:	The minimum requirements for a Quality Assurance/Quality Control (QA/QC) Plan are specified in Appendix B to 40 CFR Part 75.
References:	Appendix B, Section 1
Key Words:	Quality assurance, Recordkeeping
History:	First published in Original March 1993 Policy Manual

Question 11.2

Topic:	QA/QC Plan
Question:	Must the QA/QC Plan be submitted to EPA?
Answer:	The final Part 75 rule does not require that the QA/QC Plan be submitted to EPA. Rather, as specified in the "Response to Public Comment" document, the intent of the rule is that the Plan be maintained at the applicable plant site and that the Plan be updated as necessary. Since the requirement to conduct daily assessments on the system is effective as of the date when certification testing is completed (see Section 2.1 of Appendix B to 40 CFR Part 75), the Plan should be in place as of the date certification testing is conducted on a CEM system.
References:	§ 75.54(a)(4), § 75.57(a)(4)
Key Words:	Quality assurance, Recordkeeping
History:	First published in Original March 1993 Policy Manual

Question 11.3 REVISED

Topic: Flow Temperature QA

Question: How should we quality assure temperature monitoring devices used by a flow monitor to determine temperature corrections?

Answer: Since there are no separate performance specifications for temperature measurement equipment, there are no QA procedures that must be used to evaluate the accuracy of temperature calculations performed by such monitoring devices. The accuracy of measurements made with such devices, however, will be determined through periodic (semiannual or annual) relative accuracy test audits of the flow monitor and the quarterly flow-to-load ratio evaluations.

References: Appendix A, Sections 3, 6.5, and 7.2; Appendix B, Section 2.2.5

Key Words: Flow monitoring, Flow-to-load test, Quality assurance, RATAs

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 11.4

Topic: Hands-off Requirement for QA Testing

Question: Please clarify what is meant by performing a QA test hands-off.

Answer: For daily calibration error tests, hands-off means that the zero and upscale calibrations are performed in succession, with no adjustments to the monitor. For linearity tests and RATAs, the hands-off requirement means that only routine calibration adjustments (as defined in Appendix B, Section 2.1.3) are allowed during the test. For example, if the linearity test for a peaking unit extends over more than one day and a routine daily calibration error test is performed before completing the linearity check, the monitor may be adjusted after the daily calibration error test, but only in a routine manner (*i.e.*, so as to match (to the extent practicable) the calibration gas tag value). For flow RATAs, hands-off also means that the polynomial coefficients or K factor(s) must not be changed, either during the test at a particular load level or in-between load levels. The rule requires a three-load flow RATA if the polynomials or K-factor(s) are adjusted.

References: Appendix B, Section 2.1.3

Key Words: Calibration error, Linearity, RATAs

History: First published in October 1999 Revised Manual

Question 11.5

Topic: Appendix A, Section 2.2 Deletion

Question: Section 2.2 of Appendix A appears to have been removed from Part 75, according to the May 26, 1999 version of the Federal Register. Does that mean that this section is no longer applicable?

Answer: Section 2.2 of Appendix A was removed from the May 26, 1999 version by error and is still applicable. EPA will issue a technical correction that reinstates Section 2.2 of Appendix A.

References: Appendix A, Section 2.2

Key Words: N/A

History: First published in October 1999 Revised Manual

Question 11.6

Topic: QA Plan Format

Question: Does our QA Plan need to have a standard format? We refer to other documents, such as manuals provided by vendors, but the information in these documents is not included in the QA Plan. Do we need to retype/reword the information in the manual and include it in the QA Plan?

Answer: No standard format is required and it is not necessary to retype the information from the other manuals. The QA Plan should reference the other documents and these documents should be available on site.

References: Appendix B, Section 1

Key Words: Quality assurance

History: First published in March 2000, Update #12

SECTION 12

CERTIFICATION:

ADMINISTRATIVE/PROCEDURAL

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Question 12.1 REVISED

Topic: Monitoring Plan

Question: For an initial monitoring plan, do we use current conditions or conditions that will be applicable at the time of the certification tests?

Answer: Since the initial monitoring plan is submitted prior to the certification tests, the plan should reflect the expected conditions at the time when the certification tests will be conducted. However, if there should be a change in any of these conditions prior to the testing, the owner or operator is required under § 75.53(b) to update the monitoring plan accordingly.

References: § 75.53

Key Words: Certification tests, Monitoring plan

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 12.2 RETIRED**Question 12.3**

Topic: Pre-certification Requirements

Question: Is there a required minimum run time for a CEM system before certification?

Answer: With the exception of opacity monitors being certified in accordance with Performance Specification (PS) 1 from Appendix B of 40 CFR Part 60, there is no minimum run time prior to certification. Opacity monitors being certified in accordance with PS 1 are subject to a 168-hour conditioning period that precedes a 168-hour operational test period.

References: 40 CFR Part 60, Appendix B (PS 1)

Key Words: Certification tests, Opacity monitoring

History: First published in Original March 1993 Policy Manual

Question 12.4 RETIRED

Question 12.5 RETIRED

Question 12.6 RETIRED

Question 12.7 REVISED

Topic: Certification Applications

Question: May a utility submit certification applications separately for different CEM systems (e.g., SO₂ and NO_x) at one unit? If the utility unit submits one certification application, will EPA issue partial approvals?

Answer: Yes. The utility may choose to conduct certification activities separately. The utility would have to give proper (45-day) advance notice for each battery of tests, and would have 45 days after completion of each series of tests to submit the results. The 120-day review time would apply individually to each submission. However, the rule does require that some monitors at the unit be tested concurrently for certification; specifically, NO_x-diluent monitoring systems, and where applicable, SO₂-diluent monitoring systems (through 1999).

EPA may also issue separate certification approvals in some cases where a utility submits one certification application for all the monitoring systems at one unit. For example, if EPA determines that all but one of the monitoring systems passed the certification requirements, then EPA would issue a disapproval only for the monitoring system (e.g., the SO₂ system) which failed, and would issue a certification approval for the rest (e.g., the NO_x-diluent system, flow monitor, CO₂ monitoring system, and opacity monitoring system).

- References:** § 75.20; Appendix A, Section 6.5
- Key Words:** Certification applications, Deadlines, EPA approvals
- History:** First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 12.8

- Topic:** Timing of Tests
- Question:** Must the 7-day calibration error test and the linearity test be conducted at the same time as the RATA?
- Answer:** No. In fact, EPA recommends that utility sources complete the required certification tests in the following order: the DAHS verification tests, the cycle/response time test, the linearity check, the 7-day calibration error test, and the RATA tests.
- References:** Appendix. A, Section 6.1
- Key Words:** Calibration error, Certification process, Linearity, RATAs
- History:** First published in Original March 1993 Policy Manual

Question 12.9

- Topic:** Certification Testing
- Question:** If a company has personnel on staff with stack testing expertise, is it permissible for the company to conduct their own CEMS certification tests, rather than hiring an outside testing firm?
- Answer:** Yes. Section 75.20(c) requires that the owner or operator conduct certification tests; the owner or operator may use either company personnel or hired personnel from an outside testing firm to conduct these tests.
- References:** § 75.20(c)

Key Words: Certification tests

History: First published in May 1993, Update #1

Question 12.10 RETIRED

Question 12.11 REVISED

Topic: Certification Application -- Paper Documentation

Question: It is easy to generate certification test results within a week or so in electronic format, but paper often takes much longer. Is there flexibility in the requirement for submission of the certification application 45 days after testing (especially for the extra paper copies)?

Answer: No. A complete application is due within 45 days. A unit will be out of compliance if it does not submit a complete application within 45 days. However, if a utility finds it cannot submit a complete application, then it would be prudent to submit the electronic data within the 45 day period and the hard copy information shortly thereafter. Note that EPA's 120 day review period will not begin until all paper documentation is received, thus completing the certification application. For recertification applications, the EPA Regional Office (and the applicable State and/or local agency) may waive the requirement to receive the hardcopy portion of the application. For both certification and recertification applications, the designated representative does not have to submit a hardcopy portion of the application to EPA Headquarters.

References: § 75.56, § 75.59, § 75.63

Key Words: Certification applications, Deadlines

History: First published in May 1993, Update #1; revised July 1995, Update #6; revised in October 1999 Revised Manual

Question 12.12

Topic:	Certification Test Notification
Question:	From what date do we count back to determine the date of the certification testing notification? Is it based upon the date of the RATA?
Answer:	Forty-five (45) days prior to the first day upon which the first certification test is begun. It is the <u>first</u> test that matters, not one particular test such as the RATA or 7-day calibration error test.
References:	§ 75.61(a)
Key Words:	Certification process, Notice
History:	First published in November 1993, Update #2

Question 12.13 REVISED

Topic:	Scrubber Installation -- Certification Timeline
Question:	How much time after CEMS installation at the scrubber do we have to certify the operation of the CEMS?
Answer:	In accordance with the provisions of § 75.4(e) in the direct final rule published May 17, 1995, all certification testing of the CEMS installed at the scrubber must be complete within "90 calendar days after the date that the emissions first exit to the atmosphere through the new stack, flue, or flue gas desulfurization system. . ."
References:	§ 75.4(e)
Key Words:	Certification tests, Control devices
History:	First published in November 1993, Update #2; revised July 1995, Update #6

Question 12.14 REVISED

Topic: Certification of Excepted Methods

Question: How does the certification process work for approved exceptions to CEMS (the procedures in Appendices D and E of 40 CFR Part 75)?

Answer: The designated representative submits a **monitoring plan** at least 45 days prior to beginning certification testing (*i.e.*, the date of the first test for either the Appendix D or the Appendix E method). The initial submission of the monitoring plan should include the monitoring methods to be used, data supporting the accuracy of fuel flow meters, schematic diagrams showing fuel flowmeter and oil sampling locations, as well as CEMS and COMS locations, and capacity factor and fuel usage data to demonstrate applicability of the monitoring methods to be used from Appendix D or E.

The designated representative also submits a **certification testing notification** to EPA and the State or local agency at least 45 days prior to beginning certification testing for Appendix E only (no test notification requirements apply for Appendix D, including fuel flowmeter calibration testing). For a unit using the procedures in Appendix E, the certification testing notification includes the testing procedures that will be used in the NO_x emission rate/load correlation (including the planned load levels, fuels, and excess O₂ levels).

Provisional certification also applies for Appendix D or E procedures. This would apply upon successful completion of all test results included in the certification application, including test results demonstrating the flowmeter accuracy and the results of any DAHS verification tests developed for these methods.

The designated representative submits a **certification application** within 45 days after completing certification testing to EPA and to the appropriate State or local agency. This certification application includes results of any DAHS verification tests and a final monitoring plan, including: test data supporting the fuel flowmeter accuracy; testing results from the correlation of NO_x emission rate and load (for Appendix E procedures only); and data for deriving the F-factor used (for Appendix E procedures only).

As with certification of a CEMS, EPA has a 120 day period for review of a certification application for an excepted monitoring method. The 120 day period starts upon EPA's receipt of a complete certification application, including the final monitoring plan with all test results for the methods in Appendices D and E, and test results for the DAHS.

References: § 75.20(g), § 75.63, Appendices D and E

Key Words: Certification process, Excepted methods

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 12.15 RETIRED

Question 12.16 RETIRED

Question 12.17

Topic: 7-day Calibration Error Test

Question: Must a unit operate continuously for all 168 hours of the 7-day calibration error test during certification?

Answer: No, for purposes of Part 75. (Under many other programs, such as the New Source Performance Standards, a unit must operate continuously for 168 hours while the calibration drift test for certification is performed.)

According to Section 6.1 of Appendix A, units must be operating when measurements are made. The same section of Appendix A of Part 75 specifies that units may be tested on non-consecutive calendar days (but the certification test must be performed on seven consecutive unit operating days). This allows certification testing of CEMS on peaking and intermediate load units at actual stack conditions and at conditions similar to those that will be encountered later after certification.

When a unit has been shutdown, the monitor readings may drift. In order to improve monitor accuracy when the unit is again operating and to allow the monitor to pass the 7-day calibration error test, it is permissible to check the calibration of the instrument and adjust it while the unit is still shutdown. Calibration tests during shutdown periods are not to be reported as part of the 7-day calibration error test data. When a unit comes back on-line after an outage, it is recommended that the 7-day calibration error test not be resumed until the unit operation has stabilized. This allows the monitor to measure while its probe is exposed to normal flue gas moisture and temperature conditions.

References: Appendix A, Section 6.1

Key Words: Calibration error, Certification tests

History: First published in November 1993, Update #2

Question 12.18 REVISED

Topic: Fuel Flowmeter Calibration Methods

Question: Has EPA approved any calibration methods for fuel flowmeters besides the standards listed in § 75.20(g)(1)(I) (in the direct final rule published May 17, 1995)?

Answer: Yes. In the rule revisions promulgated on May 26, 1999, EPA combined the list of approved methods in § 75.20(g)(1)(I) with the existing list in section 2.1.5.1 of Appendix D to Part 75 to avoid repetition and potential inconsistency. In addition, EPA revised one of the approved methods to refer to the most recent version of the method: American Gas Association (AGA) Report No. 7, Measurement of Gas by Turbine Meters, section 8 (Second Revision, April, 1996). However, EPA will continue to accept results for meters already in place that met the earlier versions of this design standard (either the 1981 or 1985 editions). In addition, EPA added Sections 2, 3 and 5 from Chapter 4 of the Manual of Petroleum Measurement Standards, October 1988 (Reaffirmed 1993) (American Petroleum Institute) to the list of approved procedures to verify accuracy or design.

To obtain permission to use other methods, designated representatives should combine the information required for a petition under § 75.23 and § 75.66(c) with the monitoring plan and certification application. The Agency will then review the petition as part of the certification application.

References: § 75.20(g)(1)(I), § 75.23, § 75.66; Appendix D, Section 2.1.5.1, Question 12.26

Key Words: Excepted methods, NO_x monitoring, SO₂ monitoring

History: First published in October 1994, Update #3; revised July 1995, Update #6; revised in October 1999 Revised Manual

Question 12.19 REVISED

Topic: Accuracy Specifications for Gas Fuel Flowmeters

Question: What is the flowmeter accuracy specification for a gas flowmeter for use in Appendix D or E of Part 75?

Answer: Section 2.1.5 specifies an accuracy specification of 2.0 percent of the upper range value (URV). Section 2.1.2 of Appendix D requires that each fuel flowmeter used to meet the requirements of the protocols in Appendix D and Appendix E satisfy this accuracy specification, except for certain situations as provided in Section 2.1.4 of Appendix D.

References: Appendix D, Section 2.1.1

Key Words: Excepted methods, NO_x monitoring, SO₂ monitoring

History: First published in August 1994, Update #3; revised in October 1999 Revised Manual

Question 12.20 RETIRED**Question 12.21 RETIRED****Question 12.22 RETIRED****Question 12.23 REVISED**

Topic: Fuel Flowmeter Certification

Question: For initial certification of fuel flowmeters, how old may calibration data be and still be considered valid for certification test purposes?

Answer: Initial certification test results for accuracy of a fuel flowmeter should be no more than a year old. Except for orifice, nozzle, and venturi-type flowmeters, EPA generally

expects utilities to retest or recalibrate their fuel flowmeters annually (or once every four fuel flowmeter QA operating quarters for intermittently operated units). This requirement may be extended to once every five years where a source conducts fuel flow-to-load testing under Section 2.1.7 of Appendix D. These exceptions to annual retesting or recalibration are intended to provide reduced burdens for ongoing quality assurance requirements for infrequently operated units or where the unit substitutes the fuel flow-to-load test for a direct calibration. The Agency does not believe that either of these exceptions are warranted or applicable for initial certification of a fuel flowmeter for use under Part 75.

For orifice, nozzle, and venturi-type meters, the initial calibration includes physical installation of the orifice, which will not change; therefore, it is appropriate to use that initial installation and calibration information to apply for initial certification of an orifice, nozzle, or venturi fuel flowmeter, even if it is more than a year old. If the orifice, nozzle, or venturi-type flowmeter is more than a year old, perform a visual inspection of the meter and a calibration of the pressure and temperature transmitters before using the fuel flowmeter to provide data for the Acid Rain Program.

References: § 75.20(g)(1); Appendix D, Sections 2.1.5 through 2.1.7

Key Words: Calibration, Certification tests, Excepted methods

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 12.24 RETIRED

Question 12.25 RETIRED

Question 12.26 REVISED

Topic: Alternatives to ASTM/ASME Methods Incorporated by Reference

Question: I want to use an alternative method for calibrating my fuel flowmeter that is not listed in Section 2.1.5.1 of Appendix D. What do I need to submit to EPA to get the alternative procedure approved?

Answer: Submit the information required under § 75.23 and § 75.66(a) and (c) for an alternative to an ASTM method or other standard incorporated by reference. This includes: (1) a description of why the prescribed Part 75 method (or methods) is not being used; (2) a description and diagram(s) of any equipment and procedures used in the proposed alternative; (3) information demonstrating that the proposed alternative produces data acceptable for use in the Acid Rain Program, including accuracy and precision statements, NIST traceability certificates or protocols, or other supporting data; and (4) the designated representative certification statements required by § 72.21.

The procedures and description of equipment should be sufficiently detailed that an observer would be able to tell if the procedures and equipment were being used.

Note that it is the submitter's responsibility to demonstrate that the alternative to the standard in Part 75 will give equivalent results and is acceptable. If any of the elements discussed above are missing, EPA may request further information or even disapprove the petition.

References: § 75.23, § 75.66(c); Appendix D, Section 2.1.5.1; Question 12.18

Key Words: ASTM methods, Calibration, Petitions

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 12.27 REVISED

Topic: Fuel Flowmeters -- Accuracy Information

Question: What information must I submit with my certification or recertification application to demonstrate accuracy of a fuel flowmeter?

Answer: Submit data and calculations to demonstrate that the fuel flowmeter meets an accuracy of 2.0% of the upper range value. When calibration is done using one of the allowable methods in Section 2.1.5.1 or by comparison against a reference flowmeter, as described in Section 2.1.5.2 of Appendix D, include:

- (1) Range of the instrument at which calibration was conducted (usually expressed as a percentage of the upper range value). Data should include the full scale value and at least two other values.
- (2) The upper range value--URV (full scale).

- (3) Readings from the flowmeter being tested (in lbs/min, scfh, or other appropriate units).
- (4) Readings for the reference device (same units as the flowmeter).
- (5) Error or accuracy calculations, as a percentage of URV.

If possible, present data in a table, such as Table D-1 in Appendix D to Part 75.

When using a NIST traceable procedure, include certificates to show that equipment currently meets NIST standards.

For orifice, nozzle, and venturi-type flowmeters, you may certify by design. If you select this option, provide a certificate from the vendor showing that the fuel flowmeter meets the requirements of AGA Report No. 3. Also provide calibration data to indicate that the pressure, temperature, and differential pressure transmitters/transducers meet the 2.0% flowmeter accuracy requirement (see Section 2.1.6.1 of Appendix D). Provide this information with the certification or recertification application.

References: § 75.53(c), § 75.59(b), § 75.63; Appendix D, Section 2.1.6.1 and Table D-1

Key Words: Calibration, Certification applications, Excepted methods, Fuel sampling

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 12.28 RETIRED

Question 12.29 RETIRED

SECTION 13

RECERTIFICATION

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Question 13.1

- Topic:** Recertification with Reference Method Monitors
- Question:** The new regulations provide for instrumental methods of recertification. For someone who may be looking to purchase portable instrumentation, is there anything we might need to consider?
- Answer:** Any portable instrumentation that is used for recertification testing must be designed so that it can be operated as a reference method monitor (i.e., the analyzer should be capable of meeting performance specifications in the applicable reference method and, when used for recertification testing, must be operated as a reference method according to 40 CFR Part 60).
- References:** § 75.22
- Key Words:** Portable monitoring, Recertification, Reference methods
- History:** First published in Original March 1993 Policy Manual

Question 13.2

- Topic:** Routine Maintenance
- Question:** What is the type and extent of maintenance to probes, analyzers, DAHS, etc., that would require recertification of a CEM system?
- Answer:** A discussion of issues related to recertification is included in § 75.20(b), and according to this section of the regulations, recertification would be required for any change that significantly affects the ability of the CEM system to measure or record SO₂, NO_x, CO₂, or opacity. Recertification would not be required, however, for changes resulting from routine or normal corrective maintenance and/or quality assurance activities. When in doubt regarding the impact of specific changes, we recommend that you contact the appropriate EPA Regional Office for a determination.
- References:** § 75.20(b)

Key Words: Recertification

History: First published in Original March 1993 Policy Manual

Question 13.3

Topic: Recertification with Backup Monitors

Question: Can we use a certified backup monitor to recertify our primary monitor?

Answer: Yes, under certain conditions. A certified backup pollutant concentration or diluent monitor could be used to do the RATA test for recertification, provided that the certified backup monitor is used as an instrumental reference method (Methods 6C, 7E, 3A). Otherwise, the backup monitor could not be used to conduct a relative accuracy test for recertification.

References: 40 CFR Part 60, Appendix A

Key Words: Backup monitoring, Recertification, Reference methods

History: First published in May 1993, Update #1

Question 13.4 REVISED

Topic: Monitoring Plan Requirements for Component/System Replacements

Question: If I replace the analyzer for an SO₂ or NO_x system, what are the requirements for assigning new component IDs or system IDs?

Answer: The requirements in this situation depend on whether the utility reports any data for the new replacement component/system which overlaps with data reported from the previously certified component/system.

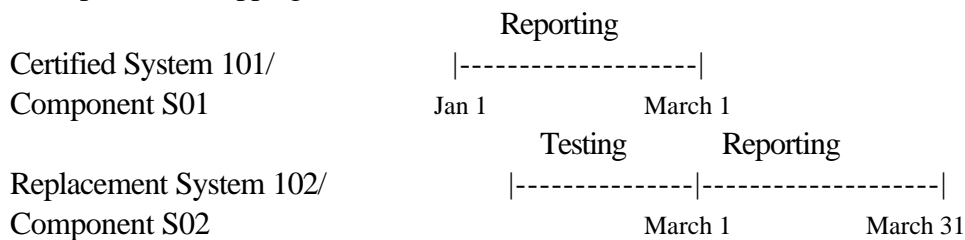
(1) Requirements for Analyzer Replacement with Overlapping Use

If a utility replaces an analyzer (whether or not the analyzer is the same brand or model as the previously installed analyzer) and the second analyzer reports test data or emissions data for any hour during the same calendar quarter in which the

first analyzer is also used to report test or emissions data, the utility must assign a new component ID and a new monitoring system ID to the second analyzer and set of associated components.

For example, suppose that a utility intends to replace component S01 in monitoring system 101 with a new analyzer of the same model. Suppose further that testing of the new analyzer begins in the 2nd quarter and that the utility continues to use and report quality-assured data from the previously certified system while testing the replacement analyzer. If the new analyzer is certified and begins to be used in the middle of the 2nd quarter, two separate, active monitoring systems (*i.e.*, the old system and the new one) must be defined in the monitoring plan, because some of the quarterly data was recorded by the old system and some of it was recorded by the new one. The replacement analyzer must also be assigned a new component ID. Then, in the next quarter, show the old system as deleted in RT 510 of the quarterly report.

Example of Overlapping Data



(2) Analyzer Replacement Without Overlapping Use

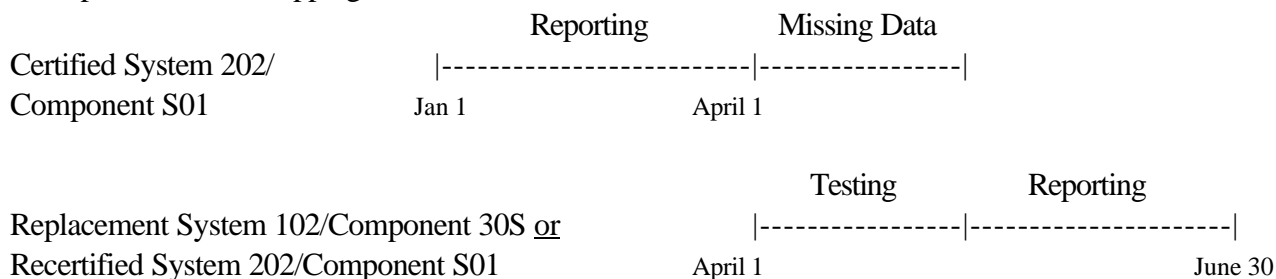
If a utility must replace component S01 in monitoring system 202 with a new analyzer and ceases to report data from the previously certified system at the end of a calendar quarter, and begins reporting data with the new, certified analyzer in the following quarter, the utility may use one of two approaches:

- (a) Define new, unique, monitoring component/system IDs in the monitoring plan. In the first quarter that the new system is used, assign a status code of "D" (delete) to the old monitoring system and assign a status code of "A" (add) to the new system in RT 510 of the quarterly report; or
- (b) Retain the existing monitoring system and component ID for the replaced analyzer. In this case, assign a status code of "C" to the replacement analyzer component in RT 510, to indicate that this component was changed out.

If there is a gap between the last date on which the previously-certified system is used and the date on which the new system begins to report valid data (Note: this includes conditionally valid data under § 75.20(b)(3)), either use an approved

backup monitor or apply the appropriate missing data routines until the new monitoring system is able to provide quality-assured data.

Example of Non-overlapping Data



You may reuse a system or component ID for a replacement system for the same parameter (i.e., SO₂ to SO₂) in a non-overlapping case as stated above.

However, you may not reuse a system or component ID for a replacement component/system associated with a different parameter (i.e., SO₂ to NO_x), at the same unit or stack.

References: § 75.53, § 75.61

Key Words: Monitoring plan, Recertification

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual; revised in March 2000, Update #12

Question 13.5 REVISED

Topic: Monitoring Plan Requirements for DAHS Changes

Question: What are the requirements for assigning new system and component IDs for DAHS version upgrades and DAHS vendor or platform changes?

Answer: It is not necessary to change any monitoring system or component IDs for DAHS version upgrades or for DAHS vendor or platform changes.

In the electronic report for the quarter in which the software version is upgraded or the new DAHS is first used for reporting, provide the updated manufacturer and version information for the DAHS component in RT 510 and use a status code of "C" in column 16 to indicate that the DAHS component was changed. Also provide RT 555

(if reporting in EDR v1.3 or v2.0) or RT 556 (if reporting in EDR v2.1), describing the changes to the DAHS and indicating the date on which the required diagnostic testing of the new DAHS component was completed.

References: § 75.20, § 75.61

Key Words: DAHS, Diagnostic testing, Monitoring plan

History: First published in March 1995, Update #5; revised in March 2000, Update #12

Question 13.6 REVISED

Topic: Reporting and Testing for Recertification and Maintenance Events

Question: What events require recertification and what must a utility do when recertifying a system?

Answer: Different events require different levels of testing -- not all changes to a monitoring system require recertification. The May 26, 1999 revisions to Part 75 have clarified this (see §§ 75.20(b) and (g)(6)). For instance, for change outs of analyzers EPA requires successful completion of all hardware recertification tests before the component/system reports quality-assured data. For DAHS changes, however, only *diagnostic* testing consisting of a DAHS verification and daily calibration of all systems associated with the DAHS is required. EPA is working to develop a more comprehensive policy on the type(s) of tests required for particular recertification and maintenance events, but in the interim, EPA will provide guidance on a case-by-case basis. If recertification is required, the designated representative must notify EPA and the appropriate State agency in writing of the dates of recertification testing in accordance with § 75.61, and must submit a recertification application in accordance with § 75.63.

The following table summarizes EPA policy on the types of tests required, the need to assign new component/system IDs and the requirement to submit RT 555 (for EDR v1.3 or v2.0) or RT 556 (for EDR v2.1), for recertification and maintenance events, as described in Policy Questions 13.4, 13.5, and 13.6.

Requirements Associated with Recertification and Maintenance Events

TYPE OF CHANGE TO MONITORING SYSTEM		COMPONENT AND SYSTEM ID CHANGE REQUIRED?	RT 555 (v1.3) or RT 556 (v2.1) REQUIRED	RECERTIFICATION OR DIAGNOSTIC TESTS REQUIRED
Analyzer Change	Data Overlap	Yes	Yes	RATA/Bias Test Linearity * Cycle Response Time * 7-Day Cal Error DAHS Verification**
	No Data Overlap	No	Yes	
DAHS Version Upgrade, or DAHS Vendor or Platform Change		No	Yes	Daily Calibration DAHS Verification
Other Modifications		No	Yes	Consult with EPA

* Not required for flow.

** DAHS verification may consist of either new verification tests or a Certification Statement that the previous DAHS verification applies.

References: § 75.61, § 75.20

Key Words: DAHS, Monitoring plan, Recertification

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual; revised in March 2000, Update #12

Question 13.7 REVISED

Topic: Quarterly Reporting of Reasons and Corrective Action for Missing Data Periods

Question: Has EPA considered an alternative, streamlined approach to report the reasons and corrective actions for missing data periods when utilities submit a quarterly report?

Answer: Yes. EPA has received many comments and suggestions regarding these submissions. In response, ARD established optional RT 550: Missing Data Reasons to provide a format for reporting electronically the reasons for and actions taken to resolve missing data periods. This record type allows a utility to identify the reason missing data are being used (using a designated code and short supplementary narrative field) and a description of the corrective action taken. In addition, the May 26, 1999 rule revisions removed the requirement to report this information and therefore RT 550 is optional beginning in the third calendar quarter of 1999. The utility, however, must still record this information.

References: § 75.54(g), § 75.57(h), § 75.64(a)(2)(vi)

Key Words: Electronic report formats, Reporting

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 13.8 REVISED

Topic: Reporting of Recertification Events

Question: How should a utility inform EPA when a change to the monitoring system requires recertification testing and report to EPA the results of the required recertification testing?

Answer: The designated representative must notify EPA and the appropriate state agency in writing of the dates of recertification testing when all of the tests in § 75.20(c) are required for recertification or for other modifications to system hardware in accordance with § 75.61.

In the normal course of maintaining and operating monitoring systems under Part 75, EPA anticipates that utilities will need to replace or repair various components or change the type of equipment or software installed to measure and report emissions. To facilitate informing EPA of these changes, EPA has defined RT 555 (EDR v1.3) or 556 (EDR v2.1). These record types provide an electronic format for reporting the type of event requiring diagnostic testing or recertification, the tests which must be performed and, if completed, the date and time on which the tests were successfully completed. EPA will release RT 556 and a final list of reason codes with EDR v2.1.

Events that require the submission of an RT 555 or 556 include:

- (1) Change-outs of analytical components and DAHS vendor changes;
- (2) DAHS version upgrades, which require diagnostic testing consisting of DAHS verification (to be kept on-site) and successful daily calibration (of all associated systems);
- (3) RATAs triggered by a change of the polynomial coefficient(s) or K factor(s) of a flow monitor or moisture monitoring systems;
- (4) Modification to the flue gas handling system or unit operation that significantly changes the flow or concentration profile;

- (5) Probe location change, for gas monitoring systems;
- (6) Flow monitor location change; and
- (7) Other system modifications that require one or more tests, as determined in accordance with the EPA Acid Rain Policy or through consultation with EPA Regional Office and Headquarters staff.

For further discussion of the requirements for submitting RT 556 please see the "EDR v2.1 Reporting Instructions" provided by EPA.

References: § 75.61, § 75.20(a)(1), § 75.64

Key Words: Electronic report formats, Recertification, Reporting

History: First published in March 1995, Update #5; revised in October 1999 Revised Manual

Question 13.9 RETIRED

Question 13.10 RETIRED

Question 13.11 RETIRED

Question 13.12 REVISED

Topic: Recertification Policy

Question: What is the policy on recertification?

Answer: The EPA's general recertification policy is as follows: for a specific recertification event, if the testing requirements are not identified in this guidance (Policy Manual Section 13) or in § 75.20(b), the utility should identify and be prepared to discuss what activity is occurring, details about what hardware/software is being

replaced/modified, the function of the hardware/software that is affected, and what impact this change might have on the instrument. In general, any event or modification which requires a RATA triggers recertification with the exceptions listed in § 75.20(b). Then, the utility should consult their Regional or Headquarter EPA contact to determine what testing is required. The EPA strongly recommends that events requiring recertification be coordinated with QA/QC testing whenever possible.

References: § 75.20

Key Words: Recertification

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 13.13 REVISED

Topic: Replacement of Components

Question: What are the recertification or diagnostic test requirements for a gas analyzer that has a capillary tube replaced with another one of like model and manufacturer?

Answer: The analyzer must pass a linearity check. Since replacement of the capillary tube does not require a RATA, it is not a recertification event (see § 75.20(b)). The linearity check is considered to be a diagnostic test. Report data from a backup system (if available) starting with the hour in which the capillary tube is replaced until the analyzer passes the linearity check. If a backup monitor is not available, use missing data in the time period from the hour in which the tube is replaced until a subsequent probationary calibration error test (as defined in § 72.2) is passed. Then, use the conditional data validation procedures of § 75.20(b)(3) until the linearity test has been passed. Report the results of the linearity check in the electronic quarterly report. Also submit RT 556 to describe the maintenance event.

References: §§ 75.20(b), (b)(1) and (b)(3), § 72.2

Key Words: Diagnostic testing, Linearity, Missing data, Recertification

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 13.14 REVISED

- Topic:** Notification Requirements for Recertification RATAs
- Question:** Should a utility notify the State and EPA Regional Office of a recertification RATA?
- Answer:** Yes, utilities must notify the State and EPA Regional Office of a recertification RATA unless a waiver has been issued in accordance with § 75.61(a)(1)(iv) by the Administrator, the appropriate EPA Regional Office, or the applicable State or local air pollution control agency. For recertification under § 75.20(b), the utility must notify the EPA Regional Office and the State Office in writing, by telephone, or by e-mail at least 7 days prior to the first scheduled day of testing. In the case of emergency rescheduling of RATA testing, § 75.61 states "in emergency situations when testing is required following an uncontrollable failure of equipment that results in lost data, notice shall be sufficient if provided within 2 business days following the date when testing is scheduled." In addition, State and local environmental agencies may have different notification requirements with which the utility must also comply.
- References:** § 75.20(b)(2), § 75.61(a)(1)(ii) and (iv)
- Key Words:** Notice, Recertification
- History:** First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 13.15 REVISED

- Topic:** Diagnostic and Recertification Tests for Flow Monitor Component Replacements
- Question:** What tests are required when a major component of a flow monitoring system is replaced?
- Answer:** A major component of a flow monitoring system is any part of the system that is involved in the direct sensing of the flow velocity or in calculating the total volumetric flow rate. Examples of major flow components include sensors, pitot tubes, transducers, thermal bridges, and microprocessors. Non-major components include power supplies, blower motors and other inactive components not involved in the direct sensing of flow or in the subsequent calculations.
- When a major component of a flow monitoring system is replaced, if the component replacement significantly affects the monitor's ability to accurately measure flow rate,

then recertification is required in accordance with § 75.20(b). For this reason, EPA recommends that, to the extent practicable, replacement of major flow system components be done at the time of scheduled semiannual or annual quality assurance RATAs. However, when this is not possible, the utility may either recertify the monitoring system by performing a RATA or may perform an abbreviated flow-to-load ratio diagnostic test as described in Section 2.2.5.3 in Appendix B to Part 75 to determine whether the replacement of a major flow component has had a significant effect which requires a flow RATA to be done. (Note that there is one exception to this: if the component replacement requires re-characterization or re-linearization of the flow monitor (i.e., if the polynomial coefficients or K-factor(s) of the instrument must be changed), a 3-load RATA is required to bring the monitor back into control, and the abbreviated flow-to-load ratio diagnostic test would not be appropriate.

When the abbreviated flow-to-load ratio diagnostic test is performed, operation at normal load is preferred. However, if normal load is unattainable at the time of the component replacement, the diagnostic may be performed at another load. If this becomes necessary, then the appropriate pre-replacement RATA information (mean reference method flow rate, load and % CO₂) must be obtained for that load level in order to perform the diagnostic test properly.

References: § 75.20(b)(1); Appendix B, Section 2.2.5.3

Key Words: Diagnostic testing, Flow monitoring, RATAs, Recertification

History: First published in June 1996, Update #9; revised in March 1997, Update #11; revised in October 1999 Revised Manual

Question 13.16 REVISED

Topic: Flow Monitor Multiple Point Sensor Replacement

Question: Suppose that a utility has a thermal or differential pressure-type flow monitor with multiple point sensors, and one of the sensors must be replaced. May the abbreviated flow-to-load ratio diagnostic test described in Question 13.15 be used to validate data from the flow monitoring system in the period extending from the removal of the bad sensor until a new sensor can be installed? After the new sensor is installed, does the diagnostic test have to be repeated?

Answer: If, following the removal of the bad sensor, a probationary calibration error test of the monitoring system is passed and the abbreviated flow-to-load ratio diagnostic test is performed and passed, then data from the flow monitor may be considered valid from

the hour of the probationary calibration error test until the new sensor is installed. However, both the probationary calibration error test and the diagnostic test must be repeated following the sensor replacement, to verify that the new component is working and has not significantly affected the monitoring system's ability to accurately measure flow rate. If the post-replacement diagnostic test is failed, the flow monitor is considered to be out-of-control. Data from the monitoring system are invalidated back to the hour of the post-replacement calibration error test and a single-load or 3-load RATA (as applicable) must be passed to bring the monitor back in-control (see Section 2.2.5.3(c) in Appendix B). Data validation for the RATA shall be done in accordance with Section 2.3.2 of Appendix B. The RATA is considered to be a recertification unless the only change to the monitor required to bring it back into control is adjustment of the polynomial coefficients or K factor(s) (see § 75.20(b)).

References: § 75.20(b), (b)(1) and (b)(3); Appendix B, Sections 2.2.5.3 and 2.3.2

Keywords: Diagnostic testing, Flow monitoring, RATAs, Recertification

History: First published in March 1997, Update #11; revised in October 1999 Revised Manual

Question 13.17 REVISED

Topic: Reporting of Flow Monitoring Diagnostic Tests

Question: When the flow-to-load ratio diagnostic test described in Question 13.15 is performed, what information, if any, must be reported to EPA, and what information can be kept on-site?

Answer: When a major flow monitoring system component is replaced and the diagnostic test described in Question 13.15 is performed, a RT 555 (if reporting in EDR v1.3) or RT 556 (if reporting in EDR v2.1) must be reported to EPA in the electronic emissions report for the quarter in which the diagnostic test is completed. For flow monitoring systems with multiple point sensors, if the diagnostic test is done twice (i.e., after removal of the bad sensor and after installation of the new sensor), submit a separate RT 555 or 556 for each test.

For reporting in EDR v1.3, fill out the 555 record(s) as follows:

- (1) In columns 13 and 19, enter the date and hour of initiation of the component replacement.

- (2) In column 21, use the specific event code that EPA has created for the flow component replacement. If no appropriate recertification event code exists, use an event code of "99" (Other).
- (3) If an event code of "99" appears in column 21, then, beginning in column 23, describe the component replacement (e.g., like-kind flow transducer replacement).
- (4) Beginning in column 73, indicate that the diagnostic test was done, and the results, as follows:
 - (a) If the test was passed, indicate: "flow diagnostic test passed."
 - (b) If the test was failed, indicate: "flow diagnostic test failed; RATA required."
- (5) If the diagnostic test was passed, enter "DLC" in column 141, to indicate that the required pre-diagnostic calibration error test was performed. Then, in columns 150 and 156, enter the date and hour of that calibration error test.
- (6) If the diagnostic test was failed, enter "RAN" for normal-load RATA in column 135 to indicate that a RATA is required. If the flow monitor was recharacterized, a three-level RATA is required; enter in column 135 "RA3" for a three-level RATA. Enter the date and time of completion of the RATA in columns 150 and 156. If the RATA is not completed by the date of the electronic quarterly report for the quarter in which the diagnostic test is done, leave columns 150 and 156 blank; then, submit an identical RT 555 in the quarter in which the RATA is completed, with the RATA completion date and time entered in columns 150 and 156.

For reporting in EDR v2.1, fill out RT 556 in accordance with the EDR v2.1 Reporting Instructions provided by EPA.

A record of each major flow component replacement must be kept on-site in the maintenance log for the flow monitoring system, indicating the date and time of the replacement and the component replaced. The date(s), times, and calculated results of the diagnostic test do not have to be reported to EPA but must be kept on-site, suitable for inspection.

References: § 75.20(b)(1); Appendix B, Sections 1.1.3 and 2.2.5.3; EDR v2.1 Reporting Instructions

Keywords: Diagnostic testing, Electronic report formats, Flow monitoring

History: First published in March 1997, Update #11; revised in October 1999 Revised Manual

Question 13.18 REVISED

Topic: Flow Monitoring Diagnostic Tests -- Reporting Conditionally Validated Data

Question: If the flow-to-load ratio diagnostic test described in Question 13.15 has not been completed by the reporting deadline for the quarter in which the change occurred, how should the period of conditional data be reported in the quarterly report?

Answer: If the diagnostic procedure described in Question 13.15, has not been completed by the time the quarterly report is generated for submission to the Agency, then the utility should use a suitable conditionally valid data flag, as described in § 75.20(b)(3)(ix). When reporting in EDR v1.3, there is no appropriate data flag within the EDR; therefore, indicate in RT 910 (or hardcopy letter transmitting the quarterly report) that the quarter ended with conditionally valid flow rate data. When reporting in EDR v2.1, the appropriate conditionally valid data flag is found in column 51 of RT 556. Report a "C" in RT 556(51) to indicate that data from the flow monitor were conditionally valid at the end of the reporting quarter. See the EDR v2.1 Reporting Instructions for a further discussion of conditional data validation and the use of RT 556.

References: § 75.20(b)(1), § 75.20(b)(3)(ix); EDR v2.1 Reporting Instructions

Keywords: Diagnostic testing, Flow monitoring, Reporting

History: First published in March 1997, Update #11; revised in October 1999 Revised Manual

Question 13.19

Topic: Recertification Following Replacement of Umbilical Cord

Question: I use a dilution type CEMS. Do I need to recertify if I replace the umbilical cord?

- Answer:** No. If an umbilical cord for a dilution type CEM system is replaced with one having lines of the same length, inside diameter and material, perform a calibration error test and a leak check. In performing the leak check, it is good practice to either pressurize or draw a partial vacuum (for a positive pressure or a negative pressure system, respectively) on all lines in the bundle, including sample, dilution and calibration. If a line has a different inside diameter, is a different length or is made of different material from the replaced line, also perform a cycle time test and a linearity check. Report the results in the quarterly report.
- References:** § 75.20(b)
- Key Words:** Recertification, Reporting
- History:** First published in October 1999 Revised Manual

Question 13.20

- Topic:** Appendix E Retesting
- Question:** Appendix E testing must be re-done after 3,000 operating hours. Is that considered a recertification?
- Answer:** No. That is a standard QA test and is not considered a recertification. The State agency should be notified when Appendix E testing occurs.
- References:** Appendix E, Section 2.2
- Key Words:** Excepted methods, Notice
- History:** First published in October 1999 Revised Manual

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SECTION 14

DAHS, RECORDKEEPING, AND REPORTING

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Question 14.1 RETIRED**Question 14.2 REVISED**

Topic: Quarterly Reporting -- First Report

Question: When is the owner or operator of a source responsible for capturing and reporting emissions data for a unit that is coming on-line?

Answer: There are two situations that dictate when an owner or operator of a source must begin capturing and reporting emissions data. First, for a new unit for which data were not previously reported under Part 75, the owner or operator must begin reporting emission data by means of an automated data acquisition and handling system (DAHS) beginning either on the date of provisional certification of the continuous emission monitoring systems (CEMS) or in the first hour following the applicable certification deadline, whichever date is earlier. The CEMS must be provisionally certified no later than 90 days after the commencement of commercial operation. For a retired unit that loses its exemption from Acid Rain requirements, the owner or operator must capture and report data beginning with the hour that it recommences commercial operation as if it were a new unit.

Second, for an affected unit that has been shutdown since the beginning of the Acid Rain program but is now coming back on-line (deferred unit), emissions data must be reported beginning with the first hour of commercial operation in accordance with § 75.64(a). The owner or operator must complete certification testing for the deferred unit by the earlier of either 45 unit operating days or 180 calendar days after the commencement of commercial operation in accordance with § 75.4(d).

Please refer to the table below for a summary of data collection and reporting requirements for new units.

Data Collection and Reporting Requirements for New and Previously Deferred Units

Unit Operation Category	Responsible for Capturing Data	Responsible for Certifying CEMS¹	Responsible for Reporting Data	Approved Data Source
Deferred	Capture data beginning with the first hour of recommencing commercial operation. (§ 75.64(a))	Complete certification testing by the earlier of: 45 unit operating days; or, 180 calendar days after commencing commercial operation. (§ 75.4(d))	Submit report beginning with the calendar quarter corresponding to the date of recommencing commercial operation. (§ 75.64(a))	From the hour of recommencing commercial operation until all certification tests are completed, use maximum potential values, reference methods (under § 75.22(b)), or an EPA approved alternative. Maximum values are determined using Appendix A, Sections 2.1.1.1, 2.1.2.1, 2.1.3.1, 2.1.3.2, and 2.1.4.1, and Appendix D, Sections 2.4.1 and 2.4.2.2. Alternatively, for CEMS, you may use the conditional data validation procedures in § 75.20(b)(3).
Retired	Any retired unit that loses the retired unit exemption will be considered a new unit on the date that it recommences commercial operation. (§ 72.8)(d)(6)(B)(ii) See new unit.	See new unit.	See new unit.	See new unit.
New	Capture data beginning with the earlier of: the hour of provisional certification; or, the hour corresponding to the relevant certification deadline. (§ 75.64(a))	Complete certification testing no later than 90 days after commencing commercial operation (§ 75.4(b)(2))	Submit report beginning with the earlier of: the calendar quarter corresponding to the date of provisional certification; or, the calendar quarter corresponding to the date for the relevant initial certification deadlines. (§ 75.64(a))	If the certification tests are passed prior to the certification deadline, report provisional data as “quality-assured” from hour of provisional certification until the certification application is approved or disapproved. If the certification tests are not passed prior to the certification deadline, use maximum potential values until certification testing is completed, except when the conditional data validation procedures of § 75.20 (b)(3) are used. Maximum values are determined using Appendix A, Sections 2.1.1.1, 2.1.2.1, 2.1.3.1, 2.1.3.2, and 2.1.4.1, and Appendix D, Sections 2.4.1 and 2.4.2.2.
¹ For a deferred unit, § 75.4(d) presently contains language that the source is responsible for data for all unit operating hours once it is back on-line. It is EPA’s intent to modify this language to more clearly support the use of commercial operating hours as a trigger for hourly emissions accountability as specified in § 75.64(a). At present, use the provisions of § 75.64(a).				

References: § 75.64(a)

Key Words: Deadlines, Quality assurance, Reporting

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 14.3 REVISED

Topic: Recordkeeping

Question: The recordkeeping requirements at § 72.9(f)(1) state that records (including all emission monitoring data) must be kept on site at the source for a period of five years from the date the document is created. The recordkeeping requirements at § 75.54(a) and § 75.57(a) state that records required by Part 75 (CEM data) must be kept for three years. Should we keep CEM records on site for five years or for three years?

Answer: Since § 72.9(f)(1) begins with the qualifying statement "Unless otherwise provided ...," the record retention requirements in § 75.54(a) and § 75.57(a) supersede those in § 72.9(f)(1). Therefore, a retention period of three years is adequate for the types of records specified in §§ 75.54(a) and 75.57(a).

References: § 72.9(f)(1), § 75.54(a), § 75.57(a)

Key Words: Recordkeeping

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 14.4 REVISED

Topic: Recording Data Availability

Question: The percent monitoring availability requirement for a CEM system (§ 75.32) calls for hourly calculations even when no data are missing. Would it be appropriate to calculate availability only when there are missing data and at the end of each quarter instead of redundant calculations every hour? Where will this data be recorded in the Electronic Report File Formats?

Answer: Once you begin using the standard missing data procedures of § 75.33, you must calculate hourly percent monitor data availability (PMA) for each hour in which quality-assured data are reported. However, calculation of PMA is optional during missing data periods. For further discussion of PMA and missing data periods, see Section II.C.(12), "Missing Data & Percent Monitoring Data Availability" in the EDR v2.1 Reporting Instructions. See also the instructions for reporting PMA under RTs 200, 201, 210, 211, and 320 in that document.

References: § 75.54(c) - (f), and § 75.57(c) - (f)

Key Words: Electronic report formats, Missing data, Recordkeeping

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 14.5 REVISED

Topic: Recording Hourly Data

Question: How does the utility report hourly data when they change time standards (e.g., from EST to daylight savings time or vice-versa)?

Answer: All data are to be reported in standard time. See Section II.C.(6), entitled "Reporting in Standard Time" in the EDR v 2.1 Reporting Instructions.

References: § 75.54, § 75.57

Key Words: Recordkeeping, Reporting

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 14.6 REVISED

Topic: Calculation Equations

Question: The monitoring plan submission will include the equations used to calculate emissions data (see citations at § 75.53(c)(6), corresponding to EDR v1.3, and

§ 75.53(e)(1)(vi), corresponding to EDR v2.1). Assume that during EPA review of the monitoring data it is discovered that an equation is in error. Would data be invalidated if the data could simply be corrected by modifying the equation?

Answer: Issues of this type will have to be handled on a case-by-case basis. However, the Agency will develop a procedure to address data errors, omissions, and discrepancies.

References: § 75.53(c)(6), § 75.53(e)(1)(vi)

Key Words: Missing data, Monitoring plan, Recordkeeping

History: First published in Original March 1993 Policy Manual; revised in October 1999 Revised Manual

Question 14.7 REVISED

Topic: Missing Data -- Electronic Format

Question: If data are missing for a recorded parameter, and no explicit data substitution is necessary, what should be reported to EPA for that particular field?

Answer: An example would be the reporting of hourly gross unit load or steam load in § 75.54(b)(3) or § 75.57(b)(2). There is no specified missing data procedure in Part 75 for this parameter. If load data are missing, report the best available estimate of the load for the hour, based upon knowledge of process conditions and engineering judgment.

References: §§ 75.54 and 75.57

Key Words: Electronic report formats, Missing data, Reporting

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 14.8

Topic: DAHS Verification

Question: If a DAHS includes a LAN or a WAN, will it be necessary to perform DAHS verification testing on each terminal hooked to the LAN or WAN?

Answer: No. Only the installed DAHS software must be tested, and on a LAN or WAN, this may be accomplished by performing the testing on any one of the attached terminals.

References: § 75.20(c)(7)

Key Words: DAHS

History: First published in May 1993, Update #1

Question 14.9 RETIRED**Question 14.10 RETIRED****Question 14.11 RETIRED****Question 14.12 REVISED**

Topic: QA Test Results

Question: Must the calculated result for tests (e.g., confidence coefficient) be calculated by the DAHS? Or could it be added to the ASCII flat file manually?

Answer: The information may be added to the ASCII file manually. See Section II.C.(3)(d), "RATA Data" in the EDR v2.1 Reporting Instructions.

References: N/A

Key Words: DAHS

History: First published in May 1993, Update #1; revised in October 1999 Revised Manual

Question 14.13 RETIRED

Question 14.14 RETIRED

Question 14.15 REVISED

Topic: Method of Determination Codes for CO₂

Question: What should be reported for the method of determination codes (MODCs) for CO₂ concentration data (RT 202) and CO₂ mass emissions data (RT 330)?

Answer: Prior to April 1, 2000, if the CO₂ missing data procedures in § 75.35(c) are followed and data are reported in EDR v1.3, use the following guidelines:

If both a certified flow monitoring system and a certified CO₂ pollutant concentration monitor provide quality assured data, fill in a MODC of "01" in column 30 of RT 202. If either monitoring system does not provide quality assured data, fill in a blank. If one or both of the monitoring systems does not provide quality assured data for 72 consecutive unit operating hours or when the CO₂ percent monitor data availability is less than 90 percent, fill in an MODC of "13" in column 31 of RT 330, to indicate that data is being provided using the Appendix G fuel sampling methodology. See the following table:

Data Comes From:	Method of Determination Code (Until Upgrade to EDR v. 2.1)	
	CO ₂ Pollutant Conc. (RT 202)	CO ₂ Mass Emissions (RT 330)
CO ₂ primary monitor	01	--
CO ₂ backup monitor	02	--
CO ₂ AMS	03	--
CO ₂ Reference Method	04	--
CO ₂ Missing data routine HB/HA average	06	--
CO ₂ Missing data routine Appendix G	--	13

On and after April 1, 2000, use of the revised CO₂ missing data procedures in § 75.35(b) and (d) is required and data reporting in EDR v2.1 is required. The new CO₂ missing data procedures involve the use of a mathematical algorithm (similar to the SO₂ missing data algorithm) and Appendix G fuel sampling is no longer required during periods of monitor downtime. Therefore, in EDR v2.1, the MODC field in column 31 of RT 330 is reserved and the appropriate MODC codes for CO₂ (*i.e.*, codes 01 through 04, 06 through 10, and 12, as applicable) are tracked only in RT 202.

References: § 75.35, § 75.54 (Table 4), § 75.57 (Table 4A)

Key Words: CO₂ monitoring, Electronic report formats, Reporting

History: First published in November 1993, Update #2 #1; revised in October 1999 Revised Manual

Question 14.16 REVISED

Topic: Method of Determination Codes for NO_x

Question: What should be reported for the method of determination codes for NO_x pollutant concentration data (RT 201) and for NO_x mass emission rate (RT 320)?

Answer: The allowable method of determination codes are found in Table 4 in § 75.54 (for EDR v1.3) and in Table 4A in § 75.57 (for EDR v2.1). For further record type specific information, see Section III.B.(2) of the EDR v2.1 Reporting Instructions, entitled "RT 201: NO_x Concentration Data" (in particular, see the instructions for

Column 30 of RT 201) and also refer to Section III.B.(20), entitled "RT 320: NO_x Emission Rate Data" (in particular, see the instructions for Column 53 of RT 320).

References: § 75.54 (Table 4), § 75.57 (Table 4A)

Key Words: Electronic report formats, NO_x monitoring, Reporting

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 14.17 REVISED

Topic: Reporting of Load Operating Levels

Question: How does an owner or operator of a unit performing a multi-load flow RATA report operating levels in RT 610, column 63, and RT 611, column 116?

Answer: In EDR v1.3, the normal load is indicated by using a letter code of "N" in RT 610/63 and 611/116, instead of using the code "L", "M," or "H". However, in EDR v2.1, the normal load is to be reported by using its actual letter code ("L", "M," or "H") in RT 610/63 and RT 611/116, and using a normal load indicator flag of "N" in column 127 of RT 611. For further discussion of reporting RATA load levels, see Section III.D.(6) of the EDR v2.1 Reporting Instructions, entitled "RTs 610 and 611: Relative Accuracy Test Audit (RATA) and Bias Test Data and Results." In particular, see the instructions for column 63 of RT 610 and columns 116 and 127 of RT 611.

References: § 75.56(a)(5)(iv)(D), § 75.59(a)(5)(ii)(E); Appendix A, Section 6.5.2

Key Words: Electronic report formats, RATAs, Reporting

History: First published in November 1993, Update #2; revised in October 1999 Revised Manual

Question 14.18 REVISED

- Topic:** Method of Determination Codes
- Question:** Which MODC codes identified in Table 4 of § 75.54 (corresponding to EDR v1.3) and Table 4A of § 75.57 (corresponding to EDR v2.1) are considered quality-assured monitor data for purposes of missing data substitution and availability calculations?
- Answer:** For Table 4 in § 75.54, MODC codes 01 through 04 and 14. For Table 4A, MODC Codes 01 through 04, 14, 16, 17, 19, and 20. Hours when these codes are used are considered quality-assured for missing data substitution purposes and for data availability calculations. Note that code 5, data from the parametric substitution method, is excluded from these lists, because the parametric monitoring procedures would be used instead of the missing data routine to calculate substitute values.
- References:** § 75.54 (Table 4), § 75.57 (Table 4A)
- Key Words:** Missing data, Recordkeeping, Reporting
- History:** First published in November 1993, Update #2; revised July 1995, Update #6; revised in October 1999 Revised Manual

Question 14.19 REVISED

- Topic:** Quarterly Reporting -- Invalidation of Emissions Data
- Question:** What is EPA's policy on the invalidation of measured emissions data?
- Answer:** EPA's policy on the invalidation of measured emissions data is found in Section II.C.(3)(a) of the EDR v2.1 Reporting Instructions, entitled "Emissions Data from CEMS."
- References:** § 75.64
- Key Words:** Electronic report formats, Reporting
- History:** First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 14.20A REVISED

- Topic:** Quarterly Reporting -- Reporting of Operating Data
- Question:** What are the requirements for submitting operating records to EPA for the quarter?
- Answer:** The answer is found in Section III.B. of the EDR v2.1 Reporting Instructions, entitled "RT 300: Unit Operating Parameters."
- References:** § 72.96, § 75.64, § 75.54(b), § 75.57(b)
- Key Words:** Electronic report formats, Reporting
- History:** First published in November 1994, Update #4; revised in March 1997, Update #11; revised in October 1999 Revised Manual

Question 14.20B REVISED

- Topic:** Quarterly Reporting -- Reporting of Non-operating Units
- Question:** What are the requirements for submitting quarterly reports to EPA when the unit or stack did not operate?
- Answer:** The answer can be found in Section II.C.(14) of the EDR v2.1 Reporting Instructions, entitled "Data Reporting Requirements for Non-operating Quarters."
- References:** § 72.96, § 75.64
- Key Words:** Electronic report formats, Reporting
- History:** First published in November 1994, Update #4; revised in March 1997, Update #11; revised in October 1999 Revised Manual

Question 14.21 REVISED

- Topic:** Quarterly Reporting -- Interpretation of Operating Data
- Question:** How does EPA determine the operating status for a unit or stack in a given hour?
- Answer:** To determine the operating status of a unit or stack for a specific hour, EPA generally relies upon either the Unit Operating Time reported in column 18 of RT 300 (any operating time value greater than zero indicates unit operation during the hour) or the presence of reported hourly emissions.
- References:** § 72.96, § 75.64
- Key Words:** Data validity, Electronic report formats, Reporting
- History:** First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 14.22 RETIRED**Question 14.23 RETIRED****Question 14.24 REVISED**

- Topic:** Quarterly Reporting -- Submission of Records for Inappropriate Time Period
- Question:** How will EPA treat records in a quarterly file if the records represent hours for another quarter?
- Answer:** In general, emissions records will not be accepted for time periods outside the current reporting quarter. However, for quality assurance records, there are limited exceptions to this. For further discussion see Section II.C.(9) of the EDR v2.1 Reporting Instructions, entitled "Reporting Data Outside the Reporting Period."
- References:** § 75.64

Key Words: Electronic report formats, Reporting

History: First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 14.25 RETIRED

Question 14.26 REVISED

Topic: Quarterly Reports -- Missing Moisture Data

Question: If I report CO₂ and SO₂ on a dry basis or if I measure NO_x concentration and diluent on an inconsistent moisture basis, I must measure and report an hourly moisture value in either RT 220 (prior to April 1, 2000) or RT 212 (on and after April 1, 2000) to calculate CO₂ mass emissions, SO₂ mass emissions, heat input and/or NO_x emission rate. How will EPA check the emissions and heat input calculations if the hourly moisture value is missing?

Answer: The Emissions Tracking System (ETS) will attempt to re-calculate the reported hourly emission rate and heat input rate values. If a moisture value is missing from RT 212 or 220, ETS will generate an error message stating that the reported emissions rate and/or heat input rate cannot be re-calculated and the owner or operator is not using a moisture default reported in RT 531.

References: § 75.64

Key Words: Electronic report formats, Reporting

History: First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 14.27 REVISED

- Topic:** Quarterly Reporting -- Measured CO₂ Concentration Values of Zero During Boiler Startup
- Question:** If the CEMS measures a CO₂ concentration of zero during boiler unit startup, what value should be used to calculate NO_x emission rate?
- Answer:** Use the diluent cap value in such cases. See Section II.C.(3)(a)2 of the EDR v2.1 Reporting Instructions, entitled "Data Entered or Edited Manually." Also see Section III.B.(20) of the EDR v2.1 Reporting Instructions, entitled "RT 320: NO_x Emission Rate Data." In particular, see the instructions for column 14 of RT 320.
- References:** Appendix F
- Key Words:** CO₂ monitoring, Electronic report formats, Reporting
- History:** First published in November 1994, Update #4; revised in October 1999 Revised Manual

Question 14.28 RETIRED**Question 14.29 RETIRED****Question 14.30 REVISED**

- Topic:** Quarterly Submission of EDR Formatted Monitoring Plans
- Question:** When I submit a quarterly report, what monitoring plan data should be included?
- Answer:** The requirements for electronic monitoring plan submittals are given in § 75.53(c) and (d) for reporting in EDR v1.3, and in § 75.53(e) and (f) for reporting in EDR v2.1. Specific reporting guidance pertaining to each required monitoring plan data element is found in Section III.C, "Monitoring Plan Records" in the EDR v2.1 Reporting Instructions. To ensure the completeness and quality of monitoring plan data, EPA has

developed and released the Monitoring Data Checking Software (MDC) on the Acid Rain Home Page: (URL: www.epa.gov/acidrain/cems/mdc/htm).

References: § 75.53, § 75.64

Key Words: Electronic report formats, Monitoring plans, Reporting

History: First published in November 1994, Update #4 as Question 10.9; renumbered as Question 14.30 in March 1995, Update #5; revised in October 1999 Revised Manual

Question 14.31 REVISED

Topic: Monitoring Plan Submitted with Quarterly Report File

Question: When the utility submits the monitoring plan (all of the required 500 level records) in the quarterly report file, does the utility need to submit the monitoring plan in hard copy? A monitoring plan checklist? A certification statement?

Answer: It is not necessary to submit a hardcopy version of the monitoring plan along with the quarterly report submittal. Sections 75.53(e) and (f) of the May 26, 1999 revisions to Part 75 clearly separate monitoring plan information into two categories, electronic and hardcopy. Section 75.62 explains when submittal of the electronic and hardcopy portions of the plan is required.

References: § 75.53, § 75.62

Key Words: Electronic report formats, Monitoring plan

History: First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 14.32 REVISED

Topic: Test Notification of Annual/Semiannual QA/QC RATAs

Question: For annual/semiannual QA/QC RATAs, what type of test notification does EPA require? Should a utility submit a test notification form? A monitoring plan checklist?

- Answer:** For annual/semiannual QA/QC RATAs, EPA requires that a written test notice be provided to the Administrator, to the EPA Regional Office and to the applicable State agency, in accordance with § 75.61(a)(5). No special form or format for the test notification is required; however, at a minimum, the notice should indicate the affected unit(s) to be tested, the type(s) of RATA(s) to be performed and the scheduled test date(s). The written notification may be provided by regular mail or by facsimile. The use of electronic mail is acceptable if the respective State or EPA office agrees that this is an acceptable form of notification. Note that under § 75.61(a)(5)(iii), the Administrator, the EPA Regional Office or the State air pollution control agency may issue a waiver from the RATA notification requirements for a unit or group of units, for one or more tests.
- References:** § 75.21, § 75.61(a)(5)
- Key Words:** Notice, RATAs
- History:** First published in July 1995, Update #6; revised in October 1999 Revised Manual

Question 14.33 REVISED

- Topic:** Reporting Results of Annual/Semiannual QA/QC RATAs
- Question:** For annual/semiannual QA/QC RATAs how should a utility report results to EPA? Electronically on a separate disk? Electronically in the quarterly report? By hard copy?
- Answer:** Report these test results electronically in the quarterly report required under § 75.64. Also provide hardcopy RATA results to the applicable EPA Regional Office and/or State air pollution control agency, upon request. See also Section III.D of the EDR v2.1 Reporting Instructions, entitled "Quality Assurance and Certification Data Reporting."
- References:** § 75.52, § 75.64(a) and (d)
- Key Words:** RATAs, Reporting
- History:** First published in July 1995, Update #6, revised in October 1999 Revised Manual

Question 14.34 RETIRED**Question 14.35 RETIRED****Question 14.36 REVISED**

Topic: Reporting of Partial Hours

Question: How do I account for SO₂ and CO₂ emissions and heat input rate during a partial operating hour?

Answer: Account for partial operating hours when the quarterly cumulative tons of SO₂ or CO₂ is calculated. Before summing SO₂ or CO₂ mass emissions for the quarter, multiply each reported hourly SO₂ or CO₂ mass emission rate (i.e., lb/hr or tons/hr) by the corresponding unit operating time in column 18 of RT 300, to convert it to a mass value (lbs or tons).

For example, if a unit operated only for the first 12 minutes in a clock hour and took SO₂ readings once every minute, those 12 readings would be averaged and would be reported as the average hourly concentration in the RT 200. The hourly average volumetric flow rate in RT 220 would be calculated in the same way. These values would then be substituted into the appropriate equation (F-1 or F-2) to calculate the hourly SO₂ mass emission rate reported in RT 310. Suppose, for the sake of this example, that the hourly SO₂ and flow averages for the 12 minutes of unit operation are, respectively, 500 ppm and 25,000,000 scfh. Assuming that SO₂ is measured on a wet basis, the hourly SO₂ mass emission rate reported in RT 310 would be 2,075 lbs/hr, according to Equation F-1. However, to indicate that the unit emitted SO₂ at this rate for only 12 minutes, you would report the unit operating time in RT 300, rounded to the nearest hundredth of an hour, as 0.20.

The product of the hour's SO₂ mass emission rate in RT 310 and the unit operating time in RT 300 would then give the *actual* SO₂ mass emitted during the partial unit operating hour: (2,075 lbs/hr)(0.20 hr) = 415 lbs. This would then be added to the products of the SO₂ mass emission rates and the unit operating times for all of the other unit operating hours in the quarter and divided by 2,000 lbs/ton to determine the quarterly SO₂ mass emissions (in tons) reported in RT 301.

The quarterly CO₂ mass emissions and heat input should be reported and calculated in an analogous fashion (*i.e.*, quantify the effects of partial unit operating hours *only* when the cumulative quarterly CO₂ mass emissions and heat input values for RT 301 are determined).

Note: There is one exception to this. If the DAHS is programmed such that it performs the calculation of SO₂ mass or CO₂ mass on an hourly basis and enters the results into the new, optional data fields for SO₂ mass (RT 310, column 35) and CO₂ mass (RT 330, column 33), then the quarterly cumulative mass of SO₂ or CO₂ emitted is determined simply by summing all of the reported RT 310/35 or 330/33 values for the quarter.

See also the "Field Descriptions and Instructions" for columns 16, 26, 62, and 72 under "RT 301: Quarterly Cumulative Emissions Data (ARP)" in the EDR v2.1 Reporting Instructions.

References: § 75.64(d); EDR v2.1 Reporting Instructions

Key Words: Electronic report formats, Reporting

History: First published in July 1995, Update #6; revised October 1996, Update #10; revised in October 1999 Revised Manual

Question 14.37 REVISED

Topic: Reporting of Partial Hours

Question: There is a possible discrepancy between how utilities are reporting their SO₂ emissions. There are two interpretations of what RT 310, column 18, "Average hourly SO₂ mass emissions," should contain. For example, assume a unit runs averaging 150 lb per hour. The unit only runs ½ hour. Should 150 lb/hr or 75 lb/hr be reported for the SO₂ mass emissions rate in RT 310, column 18?

Answer: Report the 150 lb/hr mass emission rate in column 18 of RT 310 and account for the partial operating hour when calculating the quarterly cumulative mass of SO₂ emitted. Alternatively, if the DAHS is programmed to calculate SO₂ mass on an hourly basis, report the 150 lb/hr emission rate in column 18 of RT 310 and report an hourly mass emissions value of 75 lb (not lb/hr) in column 35 of RT 310. See also the answer to Question 14.36.

References: § 75.64, RT 310

Key Words: Data reduction, Electronic report formats

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.38 REVISED

Topic: Reporting for Non-operating Affected Units

Question: If I submit an electronic quarterly report for an existing shutdown unit which does not yet have a Part 75 certified monitoring system, may I use an alternative certification statement?

Answer: An affected, non-retired unit which does not have certified CEMS because the unit was shut down on the applicable certification deadline in § 75.4 and has not operated since is classified as a deferred unit. As of June 25, 1999 (the effective date of the May 26, 1999 revisions to Part 75), the owner or operator of a deferred unit is not required to submit quarterly emissions reports for the unit until it re-commences commercial operation (see § 75.64(a)).

References: § 75.64(a)

Key Words: Designated representative, Electronic report formats, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.39 REVISED

Topic: Reporting -- Diluent Cap

Question: Revisions to Appendix F of Part 75 allow us to calculate NO_x emission rate by substituting a diluent cap CO₂ concentration of 5.0% for boilers or 1.0% for turbines or an O₂ diluent cap concentration of 14.0% for boilers or 19.0% for turbines for a measured CEM reading whenever the diluent concentration is below 5.0% CO₂ for boilers or 1.0% for turbines or above 14.0% O₂ for boilers or 19.0% for turbines. May we use this diluent cap only in calculating the NO_x emission rate in lb/mmBtu (RT

320), and then use the actual measured CO₂ concentration for calculating heat input and CO₂ mass emissions?

Answer: Yes, when the diluent cap is used for NO_x emission rate, you may use the actual measured CO₂ concentration for heat input rate and CO₂ mass emission rate calculations, because the diluent cap may only be used when a quality-assured diluent gas reading has been obtained. The reverse is also true (i.e., if you use the diluent cap value for heat input rate and CO₂ mass calculations, you need not use it to calculate NO_x emission rate). Note, however, that for a particular hour, in which both the heat input rate and CO₂ mass emission rate are determined using CEMS, if the diluent cap is used to calculate one of these parameters, it must also be used to calculate the other. (See also Section III.B.(3) of the EDR v2.1 Reporting Instructions, entitled "RT 202: CO₂ Concentration Data (ARP).")

References: Appendix F, Sections 4.1, 4.4.1, 5.2.1, 5.2.2, 5.2.3, 5.2.4

Key Words: Diluent monitors, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.40 REVISED

Topic: Reporting -- Diluent Cap

Question: Revisions to Appendix F of Part 75 allow us to calculate NO_x emission rate by substituting a diluent cap CO₂ concentration of 5.0% for boilers or 1.0% for turbines or an O₂ diluent cap concentration of 14.0% for boilers or 19.0% for turbines for a measured CEM reading whenever the diluent concentration is below 5.0% CO₂ for boilers or 1.0% for turbines or above 14.0% O₂ for boilers or 19.0% for turbines. Are hours when the diluent cap value is substituted for a CEM value considered missing data, resulting in lower percent monitor data availability for NO_x emission rate?

Answer: No. You may only use the diluent cap during periods when the diluent monitor is measuring valid, quality-assured data. Therefore, as with any hours of valid, quality-assured data, these hours count as quality-assured data to go in the lookback period for substitute data and they count as quality-assured hours for purposes of calculating availability. If the diluent monitor is not measuring valid, quality-assured data, use the missing data procedures in subpart D of Part 75 (§ 75.31 or § 75.33 for NO_x, § 75.31 or § 75.35 for CO₂, and § 75.36 for heat input rate).

- References:** §§ 75.31, 75.33, 75.35, and 75.36; Appendix F, Sections 4.1, 4.4.1, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.3.5
- Key Words:** Diluent monitors, Missing data, Reporting
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.41 REVISED

Topic: Reporting -- Diluent Cap

Question: Revisions to Appendix F of Part 75 allow us to calculate NO_x emission rate by substituting a diluent cap CO₂ concentration of 5.0% for boilers or 1.0% for turbines or an O₂ diluent cap concentration of 14.0% for boilers or 19.0% for turbines for a measured CEM reading whenever the diluent concentration is below 5.0% CO₂ for boilers or 1.0% for turbines or above 14.0% O₂ for boilers or 19.0% for turbines. What should be the method of determination code in RT 320 for a NO_x system when the diluent cap is used? What should be the method of determination code in RT 202 for CO₂ concentration and for RT 330 for CO₂ mass emissions?

Answer: Use a method of determination code (MODC) of "14" in RT 320 (for NO_x). This code indicates an hour in which the NO_x emission rate was calculated using measured NO_x concentration (RT 201) and the diluent cap. Regarding the appropriate reporting in RTs 202 and 330 when the diluent cap is used, it depends upon which EDR version is being used, as indicated below:

For EDR v1.3: The EPA prefers that utilities report the actual monitor reading for calculating CO₂ mass emissions and heat input rather than a diluent cap value. For these hours in which the actual values are used, the MODC in RT 202 would be "01" or "02". If the diluent cap is used for reporting the CO₂ concentration in RT 202, then use the MODC of "14" in RT 202. Leave the method of determination code blank for RT 330 (for CO₂ mass emissions). Note that you should fill in the method of determination code in RT 330 only when using Appendix G missing data procedures. Note that reporting in EDR v1.3 will no longer be allowed after April 1, 2000. Version 2.1 must be used on and after that date.

For EDR v2.1: When the diluent cap value is used to determine CO₂ mass emissions, always report the actual measured CO₂ concentration in RT 202, using an appropriate MODC (i.e., 01, 02, 03, or 04). Do not report a MODC of 14 in RT 202. Instead, indicate by means of a "Y" flag in column 43 of RT 330 that the diluent cap value is

being used to calculate CO₂ mass emissions for the hour. (See also Section III.B.(20), entitled "RT 320: NO_x Emission Rate Data" and Section III.B.(3), entitled "RT 202: CO₂ Concentration Data (ARP)" in the EDR v2.1 Reporting Instructions). The use of EDR v2.1 is mandatory, beginning on April 1, 2000.

References: Appendix F, Sections 4.1, 4.4.1, 5.2.1, 5.2.2, 5.2.3, 5.2.4

Key Words: Diluent monitors, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.42 RETIRED

Question 14.43 RETIRED

Question 14.44

Topic: CO₂ Emission Reporting

Question: Confirm the following assumptions regarding CO₂ emission reporting for gas and oil-fired units:

- (1) If Equation G-4 is used for oil, report CO₂ due to oil in tons/day in RT 331.
- (2) If Equation G-4 is used for gas, report CO₂ due to gas in tons/hr in RT 330.
- (3) If Equation G-1 is used for gas and oil, report CO₂ total (gas+oil) in RT 331.

Answer:

- (1) Equation G-4 may only be used for gas-fired units as defined in § 72.2. Oil-fired units using fuel sampling and analysis to determine CO₂ mass emissions should use Equation G-1 and report daily in RT 331.
- (2) **Gas-fired units using Eq. G-4.** A gas-fired unit using Equation G-4 to provide hourly CO₂ mass emissions based upon heat input should report in RT 330. This will be true whether the gas-fired unit is combusting oil or gas.

(3) **Units using Appendix G (Eq. G-1) all the time.** A unit using Equation G-1 of Appendix G to determine CO₂ mass emissions by fuel sampling and analysis should report daily in RT 331. This will be true no matter what fuel is combusted. If the unit combusts more than one fuel in a day, determine the total CO₂ mass emissions for the day from all fuels and report this in RT 331.

References: § 72.2, § 75.54(e)(2), § 75.57(e)(2); Appendix G, Section 2

Key Words: CO₂ monitoring, Electronic report formats, Gas-fired units

History: First published in November 1995, Update #7

Question 14.45 RETIRED

Question 14.46 REVISED

Topic: Reporting Heat Input -- Multiplication by Operating Time and Fuel Usage Time

Question: For Appendix E recordkeeping, do we multiply the fuel usage time by the hourly heat input rate to determine total hourly heat input prior to reading off of the NO_x correlation curve?

Answer: For Appendix E, use the unfactored heat input rate to determine the NO_x emission rate along the NO_x/heat input correlation curve. If you burn multiple fuels in an hour, then use the total heat input for each fuel for the hour (heat input rate multiplied by fuel usage time) in calculating the average NO_x emission rate for the unit for the hour (see Equation E-2). See also the instructions for RTs 323, 324, and 325 in Sections III.B.(23), (24), and (25) of the EDR v2.1 Reporting Instructions.

References: Appendix E, Sections 3.3.4, 2.4.1, and 2.4.3

Key Words: Excepted methods, Heat input, NO_x monitoring, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.47 REVISED

Topic: Reporting Heat Input -- Multiplication by Operating Time and Fuel Usage Time

Question: When reporting heat input on an hourly basis in RT 300, do we report the unfactored heat input rate, or the factored total heat input (heat input rate multiplied by unit operating time)? Please reply also for Appendix D sources, during single and dual fuel hours.

Answer: In RT 300, column 36, report the unfactored heat input rate in mmBtu/hr. Consider the unit operating time only when calculating the cumulative heat input for the quarter. To calculate cumulative quarterly heat input, multiply each hourly heat input rate in RT 300, column 36 by the corresponding unit operating time in RT 300, column 18, and then take the sum of these products. Note that there is one exception to this. If the DAHS is programmed to calculate heat input (in mmBtu) on an hourly basis, you may report both heat input rate (column 36) and the heat input (column 57) for the hour in RT 300. If you report heat input in RT 300/57, simply sum these hourly values at the end of the quarter to obtain the cumulative quarterly heat input.

For an Appendix D source, during a single fuel hour, the heat input rate in RT 302/45 or RT 303/45 should be the same as the heat input rate in RT 300/36 for the hour. The fuel usage time in RT 302/52 or RT 303/52 should be identical to the unit operating time in RT 300/18.

For an Appendix D source, during a multiple fuel hour, it will be necessary to determine an average heat input rate for the hour. This requires multiplying the heat input rate in RT 302/45 or 303/45 by the corresponding fuel usage time in RT 302/52 or RT 303/52 for a given fuel, to obtain the hourly heat input for the fuel. Then add the individual hourly heat inputs from each fuel and divide this sum by the unit operating time in RT 300/18 to get the unit heat input rate to enter into RT 300/36. See also Section III.B.(11), entitled "RT 300: Unit Operating Parameters" in the EDR v2.1 Reporting Instructions.

References: § 75.57(b), § 75.58(c), § 75.64; Appendix D

Key Words: Electronic report formats, Excepted methods, Heat input

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.48 REVISED

- Topic:** Appendix E -- Monitoring Plan, RT 520 Requirements
- Question:** Have the formula verification requirements for Appendix E certification changed under the May 26, 1999 revisions to Part 75?
- Answer:** Yes. Appendix E formulas are no longer required in an Appendix E certification application. The required Appendix E formula verification procedure is described in item (4) of Question 26.5. Note that when you begin reporting data in EDR v2.1, you must report multiple RTs 560, to define the NO_x correlation curve segments. (See also Section III.C.(20) of the EDR v2.1 Reporting Instructions, entitled "RT 560: Monitoring System Recertification, Maintenance, or Other Events.")
- References:** Appendix E, Section 3
- Key Words:** Excepted methods, Monitoring plan, NO_x monitoring
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.49 REVISED

- Topic:** Appendix D Reporting -- Method of Determination Codes
- Question:** For RT 302 (field starting in column 31), code "3" is indicated as being for maximum fuel flow rate. Is this the maximum observed or maximum potential flow rate? For consistency with substitution it would be the maximum observed. Is this correct?
- Answer:** No. Use code "3" for the maximum potential flow rate. If you are reporting the maximum fuel flow rate in a load range (for multiple fuel hours), use code "1." This is the code for substitute data. (See also Section III.B.(13) in the EDR v2.1 Reporting Instructions, entitled "RT 302: Oil Fuel Flow".)
- References:** Appendix D, Section 2.4.2
- Key Words:** Electronic report formats, Excepted methods, Reporting
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.50 RETIRED**Question 14.51 REVISED**

Topic: Electronic Reports -- Editing Data

Question: Please clarify various Agency references to editing negative emission values that may be recorded. Under startup and shutdown conditions, the recording of negative emission values is possible, but reporting of negative values is not permitted by the Agency. Can the negative emission values manually be changed to zero?

Answer: In general, when negative emissions or percent moisture values are recorded during startup and shutdown you may replace them manually with zeros. When you replace a negative value with zero, you must also report MODC "21" for the affected gas concentration (except for CO₂), percent moisture, and, if applicable, NO_x emission rate in the appropriate EDR record types (RTs 200, 201, 212, and 320). MODC "21" may be manually entered.

For negative CO₂ values recorded during startup and shutdown, replace these with the diluent cap value instead of zero, to avoid reporting heat input rates of zero while the unit is operating. For a further discussion, see Section II.C.(3)(a)(2) of the EDR v2.1 Reporting Instructions, entitled "Data Entered or Edited Manually."

References: EDR v2.1 Reporting Instructions

Key Words: Data reduction, Electronic report formats, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.52 REVISED

Topic: Electronic Report Formats -- Multiple Fuels

Question: In RT 302 (and 303), would the Single/Multiple Fuel flag be "M" if one type of gas and one type of oil were combusted, or is "M" to indicate that more than one type of gas (or oil) was combusted?

- Answer:** If more than one type of fuel (for example, oil and gas, or diesel oil and residual oil) is combusted during an hour, then "M" must be entered in RT 302, column 89 and/or RT 303, column 59. This information is necessary to implement Appendix D fuel flowmeter missing data procedures which require a look back to single-fuel hours to fill in for missing data when one fuel is combusted and a look back to multiple fuel hours when multiple fuels are combusted. See also Section III.B.(13), in the EDR v2.1 Reporting Instructions, entitled "RT 302: Oil Fuel Flow" and Section III.B.(14), entitled "RT 303: Gas Fuel Flow."
- References:** § 75.64; Appendix D, Sections 2.4.2.2 and 2.4.2.3; EDR v2.1
- Key Words:** Electronic report formats, Missing data
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.53 REVISED

- Topic:** Fuel Usage Reporting
- Question:** If gas is burned for the first 20 minutes of an hour and oil and gas are co-fired for the remaining 40 minutes, are the fuel usage times for gas and oil reported as "1.00" and "0.67", respectively, even though the fuel usage times do not add up to 1.00?
- Answer:** Yes. See also Section III.B.(13) of the EDR v2.1 Reporting Instructions, entitled "RT 302: Oil Fuel Flow" and Section III.B.(14), entitled "RT 303: Gas Fuel Flow."
- References:** § 75.64
- Key Words:** Data reduction, Reporting
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.54 REVISED

Topic: Monitoring Plans -- Electronic Submission

Question: Our understanding is that the entire monitoring plan must be submitted in each electronic quarterly report. Does this mean that the monitoring plans for all units at a plant, regardless of association with each other, must be submitted in a single EDR file? For instance, if a plant has a common stack CS12 for units 1 and 2, a single stack unit 3, and multiple stacks MS4A and MS4B for unit 4, should all of these monitoring plan records be reported in the same data file? If so, what is the sort order?

Answer: No. The monitoring plan records for all of these units should NOT be in the same data file. Include only the complete monitoring plan data records for the appropriate unit(s) in the one quarterly data file submitted for that (those) unit(s). In the example, the utility would submit one file which would include all of the appropriate data for CS12, unit 1, and unit 2, including the hourly records, monitoring plan records, and quality assurance records in the standard record type order. A separate file would be submitted for unit 3. An additional separate file would be submitted which includes all of the appropriate data for MS4A, MS4B, and unit 4. See also Section II.B.(1) of the EDR v2.1 Reporting Instructions, entitled "File Content."

References: § 75.64

Key Words: Monitoring plan, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.55 RETIRED**Question 14.56 RETIRED****Question 14.57 RETIRED**

Question 14.58 REVISED

Topic: Electronic Report Formats -- CO₂ Performance Specifications

Question: Alternative Performance Specification Flag - RTs 230, 600 and 602. A unit is not considered a low emitter of SO₂ or NO_x under Section 2.3.1.2(e) or (f) of Appendix B; however, it does use the alternative CO₂ calculation for daily calibration error and 7-day calibration error tests, and linearity tests. Should the "1" or "0" flag be used?

Answer: For daily and 7-day calibration error tests of a CO₂ monitor, there is actually **no** alternative performance specification. Section 3.1 of Appendix A to Part 75 specifies that the calibration error of a CO₂ monitor is **always** expressed in percent CO₂, rather than as a percentage of span. This is considered to be the normal calibration error specification and should have a "0" flag in RT 230 and 600. The alternate specification flag in these record types applies only to SO₂ and NO_x pollutant concentration monitors at facilities that are low emitters, under Section 2.3.1.2(e) or (f) of Appendix B, of those pollutants.

Regarding linearity tests, however, Section 3.2 of Appendix A clearly identifies both a normal and an alternative performance specification for CO₂ monitors. The alternative specification is available to **all** sources, regardless of their emission levels, and may be used at **any** of the three levels (L, M, or H) of the linearity test. If the normal linearity specification (5% of the reference value) is used, then report a "0" flag in RT 602. If the alternative specification (absolute value of R-A # 0.5 % CO₂) is used, report a "1" flag in RT 602.

See also Section III.B.(8) of the EDR v2.1 Reporting Instructions, entitled "RT 230: Daily Calibration Test Data and Results" and Section III.D.(1), entitled "RT 600: 7-Day Calibration Error Test Data and Results."

References: Appendix A, Sections 3.1 and 3.2; Appendix B, Sections 2.3.1.2(e) and (f)

Key Words: Calibration error, CO₂ monitoring, Electronic report formats, Linearity

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.59 RETIRED

Question 14.60 REVISED

- Topic:** Reporting a Bias Adjustment Factor for CO₂ Monitoring
- Question:** The regulations do not require a bias test for the CO₂ monitoring system. Section 75.59(a)(5)(iii)(G) states to report a bias adjustment factor of "1.000 for any monitoring system that passed the bias test." Is it correct to report a bias adjustment factor (BAF) of 1.000 in RT 611 for the CO₂ monitoring system, even though a bias test was not performed?
- Answer:** Yes. Report a BAF of 1.000 in RT 611, column 111 for the CO₂ monitoring system. See also Section III.D.(6) in the EDR v2.1 Reporting Instructions, entitled "RT 611: RATA and Bias Test Results."
- References:** § 75.59(a)(5)(iii)(G)
- Key Words:** Bias, CO₂ monitoring, Electronic report formats
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.61 REVISED

- Topic:** When to Submit RT 550 (Reasons for Missing Data Periods)
- Question:** When should RT 550 be submitted?
- Answer:** RT 550 was originally created to allow electronic submission of a portion of the compliance certification requirement at § 75.64(c), which required submittal of the "... measures taken to cure the causes for the missing data periods." However, the May 26, 1999 revisions to Part 75 removed this requirement from the rule. Therefore, submittal of this record type is optional.
- References:** § 75.64(a)(2)(vi), § 75.64(c)
- Key Words:** Missing Data, Reporting
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.62 REVISED

- Topic:** Ordering of RT 550
- Question:** How should we order RTs 550? We would prefer to print all RTs 550 for a given parameter, then move on to the next parameter. This would mean a record ordering by parameter, then by date/time.
- Answer:** The proposed ordering by parameter is acceptable.
- References:** § 75.64; EDR v2.1
- Key Words:** Electronic report formats, Monitoring plan
- History:** First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.63 REVISED

- Topic:** RT 550 Reason Codes
- Question:** Adding the new reason codes for downtime for RT 550 can be done in a variety of ways. Will it be okay to include this analysis and provision to enter reasons in software which is run at the end of each quarter? In other words, can the current real time database design be left alone?
- Answer:** It is not necessary to have this information electronically as part of the real time database. For example, the information in RT 550 may be generated in another software program and then merged into the quarterly report at the end of the quarter. In the event of a site visit, missing data reasons should be available in some form (e.g., CEM log, maintenance log, hardcopy).
- References:** § 75.64; EDR v1.3
- Key Words:** Electronic report formats, Missing data, Reporting
- History:** First published in November 1995, Update #7

Question 14.64

- Topic:** Effect of Off-line Hours on RTs 550
- Question:** Previously, EPA has provided guidance indicating that if a unit were down for a few hours in the middle of a missing data event, the period should be treated as a single missing data gap (and the offline hours should not be included in the determination of the gap length). In a situation like this, should only one RT 550 record be created to represent the missing data gap that happened to include a number of hours in which the unit was not operating, or should multiple records be created?
- Answer:** Create only one RT 550 record, so long as the missing data gap does not extend into the next calendar quarter. If the missing data gap does extend into the next calendar quarter, then follow the procedures described in Policy Manual Question 14.66.
- References:** § 75.64; EDR v2.1
- Key Words:** Electronic report formats, Missing data, Reporting
- History:** First published in November 1995, Update #7

Question 14.65 REVISED

- Topic:** Effect of Overlapping Missing Data on RTs 550
- Question:** If CO₂ data becomes invalid at time "0," RTs 550 for the affected CO₂ and NO_x-diluent monitoring systems would have to be created. If at time "1" later (while CO₂ is still invalid), data from the NO_x analyzer becomes invalid, should another RT 550 be created for the NO_x-diluent system? If so, would the end time of the first NO_x record be equal to the hour the CO₂ data became valid, and would the end time of the second NO_x record be equal to the hour the NO_x (ppm) data became valid?
- Answer:** No. Create just one RT 550 for the NO_x-diluent system and report one RT 550 for the CO₂ system. The NO_x missing data period extends from time "0" (when the CO₂ monitor data becomes invalid) until both NO_x and CO₂ again become valid. The reason for the NO_x missing data period should describe the event that initially caused the NO_x lb/mmBtu data to be invalidated.
- References:** § 75.64; EDR v2.1

Key Words: Electronic report formats, Missing data, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.66 REVISED

Topic: Effect of a Quarter Boundary on RTs 550

Question: Previously there was detailed guidance provided on how to run missing data for an event that overlaps a quarter boundary. Should RT 550 records be treated in a similar manner? Three options seem reasonable: (1) a single RT 550 is reported with actual begin and end times (when would it be reported?); (2) one RT 550 is reported with actual begin and quarter end times, followed by another RT 550 (reported next quarter) with quarter begin time and actual end time; or (3) one RT 550 is reported with actual begin and quarter end times, followed by another RT 550 (reported next quarter) with actual begin time and actual end time. What treatment would be appropriate?

Answer: The second option. Report one RT 550 with the actual beginning time of the missing data period and the quarter end time. Then in the next quarter, report another RT 550 with the beginning time for the quarter and the actual end time of the missing data period.

References: § 75.64; EDR v2.1

Key Words: Electronic report formats, Missing data, Reporting

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.67 RETIRED

Question 14.68 RETIRED

Question 14.69

- Topic:** RT 550 End Time
- Question:** If hours 01:00 and 02:00 are missing some piece of data (e.g., SO₂ ppm), it seems obvious that the Begin Hour field (column 23) of the RT 550 should be "01." Should the End Hour field (column 31) be "02" representing the last bad hour, or "03" representing the first good hour?
- Answer:** Report the End Hour field as "02," the last hour of the missing data period.
- References:** § 75.64; EDR v2.1
- Key Words:** Electronic report formats, Missing data, Reporting
- History:** First published in November 1995, Update #7

Question 14.70 RETIRED**Question 14.71 RETIRED****Question 14.72**

- Topic:** Minimum Data Acquisition and Handling System Requirements
- Question:** What are the minimum requirements for a Data Acquisition and Handling System, particularly for Appendix D and/or E units?
- Answer:** The Data Acquisition and Handling System (DAHS) must electronically capture data, perform calculations, and produce electronic reports in the Electronic Data Reporting (EDR) format, as specified in Appendix A, Section 4. Note that a DAHS may have more than one component, as long as the multiple components are identified in the monitoring plan.

For Appendix D and/or E units, the DAHS system can be very simple. For example, the utility may have a multiple component DAHS, where the first component is a simple recording device which electronically captures the data from the fuel flow meter, and the second component is a commercially available spreadsheet program run on a PC with a small number of customized programming commands within the spreadsheet program to assist in the report generation. Because the fuel sampling and analysis data (% sulfur, GCV) is manually captured, it may be manually entered into the spreadsheet. The spreadsheet would then be customized to perform formula and missing data calculations (see Question 14.73), and to produce the ASCII flat file specified by the EDR format. The utility could then use the EPA developed software program, ETS-PC, to ensure that the quarterly report files are in the correct EDR format.

References: Appendix A, Section 4

Key Words: DAHS, Excepted methods

History: First published in November 1995, Update #7

Question 14.73 REVISED

Topic: Data Acquisition and Handling System -- Minimum Requirements for Missing Data

Question: Are there any exceptions to the minimum requirements for a Data Acquisition and Handling System, particularly for Appendix D and/or E units?

Answer: Yes. As described in Question 14.72, an Appendix D and/or E unit could use a simple DAHS, consisting primarily of a commercially available spreadsheet. However, EPA recognizes that the missing data calculations may be difficult to program within a spreadsheet environment. Therefore, for peaking units (as defined in § 72.2) using Appendix D and/or Appendix E, EPA will consider petitions (which may be submitted with the certification or recertification application) to use maximum potential fuel flow rate instead of following the load based missing data procedures outlined in the rule. In the monitoring plan with the petition, in RT 507, provide capacity factor information for three calendar years to demonstrate that the unit meets the definition of a peaking unit in § 72.2.

For all parameters other than fuel flow rate, use the missing data procedures specified in Part 75. For additional guidance see Questions 15.12 and 15.19.

References: Appendix A, Section 4

Key Words: DAHS, Excepted methods, Missing data

History: First published in November 1995, Update #7; revised in October 1999 Revised Manual

Question 14.74 RETIRED

Question 14.75

Topic: Validation of Stored Data during DAHS Downtime

Question: Data Acquisition and Handling Systems (DAHS) are often made up of multiple components such as a Programmable Logic Controller (PLC), which does limited data processing and short term data storage, and a PC, which does more complete data processing and long term data storage. Because of this, it may be possible to collect and store raw data during a DAHS downtime and complete the processing of that data when the complete DAHS is running again. For example, this might occur during the installation of upgraded software or when a PC crashes. May we collect and store raw data in a component such as a PLC during a DAHS downtime and then complete processing of the data when the complete DAHS system is operating again? If so, would our data be considered valid if the reason for the DAHS downtime is a change to the DAHS that requires recertification?

Answer: Yes. It is acceptable to store raw data during a period when the complete DAHS is not available (e.g., during installation and DAHS verification testing for a new software version or when the DAHS PC crashes) and later complete processing of that data in the DAHS and report that data as valid during the entire time that the DAHS was unavailable, as long as the raw data (including any necessary quality assurance data) are:

- (1) Quality-assured based on all other applicable criteria (e.g., daily calibration has been passed);
- (2) Stored electronically in a component (e.g., PLC, data logger) that is identified in the data pathway diagram (in the monitoring plan) of a certified system; and
- (3) Captured, stored, and transferred electronically.

If the software is being upgraded, but the data storage component is not affected, data may be collected and stored in the storage component while the missing data and formula verification tests are run on the software. As long as those tests are passed, the data collected and stored in the storage component may be processed by the newly certified DAHS component and may be considered valid. Please note, however, that if the storage component (e.g., PLC, data logger) is also being modified or replaced, data may not be stored on the new or modified component until after the recertification tests are completed.

References: § 75.10(a)

Key Words: DAHS, Recertification

History: First published in March 1996, Update #8

Question 14.76 RETIRED

Question 14.77 RETIRED

Question 14.78 RETIRED

Question 14.79 RETIRED

Question 14.80 REVISED

Topic: Reporting during Gas-only Hours

Question: EPA has revised § 75.11(e) to allow the reporting of SO₂ concentration from an SO₂ CEMS during hours when the unit is combusting only gas. The revised rule requires reporting of a default value of 2.0 ppm whenever the SO₂ hourly average value recorded by the CEMS is less than 2.0 ppm. How is reporting to be implemented in RTs 200 and 310? Should the 2.0 ppm be reported as an unadjusted value directly

from the monitor or as a bias-adjusted value? Is there a different method of determination code for hours when the 2.0 ppm default value is reported?

Answer: Report the default value only when the bias-adjusted hourly average SO₂ concentration is less than 2.0 ppm. Leave the unadjusted SO₂ concentration in column 29 of RT 200 blank when the default is reported. Report the 2.0 ppm value as the bias-adjusted SO₂ concentration in column 35 of RT 200. Use a method of determination code of "16" when the 2.0 ppm default value is reported. See also Section III.B.(1) of the EDR v2.1 Reporting Instructions, entitled "RT 200: SO₂ Concentration Data (ARP)" and Section III.B.(17), entitled "RT 310: SO₂ Mass Emissions Data (ARP)."

References: § 75.11(e)

Key Words: Electronic data reporting, Gas-only hours, SO₂ monitoring

History: First published in October 1996, Update #10; revised in October 1999 Revised Manual

Question 14.81 REVISED

Topic: Calculation of Heat Input Rate

Question: Should we use bias-adjusted flow rates to calculate and report heat input rate in RT 300?

Answer: Yes. Use the bias-adjusted flow rate when calculating heat input rate using equations F-15, F-16, F-17, and F-18. Report that heat input rate value in RT 300 for each hour. EPA considers the bias-adjusted values to be the official values for determining compliance for emissions and heat input under the Acid Rain Program. See also Section III.B.(11) of the EDR v2.1 Reporting Instructions, entitled "RT 300: Unit Operating Parameters."

References: Appendix F, Section 5.2

Key Words: Bias adjustment factor, Calculations, Heat input

History: First published in October 1996, Update #10; revised in October 1999 Revised Manual

Question 14.82 REVISED

- Topic:** Calculation of Quarterly and Annual NO_x Emission Rates
- Question:** According to Equations F-9 and F-10 of Part 75, quarterly and annual NO_x emission rates should be calculated as a straight arithmetic average (*i.e.*, the hourly NO_x emission rates should be summed and divided by the number of hourly NO_x emission rates during the quarter or the year, and should not be weighted by unit operating time). According to other EPA guidance, it appears that the quarterly and annual NO_x emission rates should be calculated as a time-weighted average (*i.e.*, the product of the hourly NO_x emission rates and the hourly operating time should be summed and divided by the total hourly operating time). Which method is correct?
- Answer:** The correct method is to calculate the quarterly or annual average NO_x emission rate as a straight arithmetic average using Equations F-9 and F-10. This is the method that EPA will use to determine compliance with Part 76 NO_x emission limits. This supersedes all previous Agency guidance to the contrary. See also Section III.B.(12) of the EDR v2.1 Reporting Instructions, entitled "RT 301: Quarterly Cumulative Emissions Data (ARP)."
- References:** Appendix F, Section 3
- Key Words:** NO_x emission rates, Reporting
- History:** First published in October 1996, Update #10; revised in October 1999 Revised Manual

Question 14.83 RETIRED**Question 14.84 REVISED**

- Topic:** Quality Assurance RATA Notification
- Question:** Is EPA's Clean Air Markets Division allowing a waiver from the requirement in § 75.61 to notify ARD of the date of periodic quality assurance RATAs?
- Answer:** Yes. Effective February 28, 1997, the Clean Air Markets Division has issued a waiver from the requirement to notify the Administrator (or Administrator's delegatee,

ARD) of the date of periodic relative accuracy testing under § 75.61(a)(5). This waiver shall continue until the Agency issues guidance otherwise. This policy does not waive the requirement to notify the Administrator for certification/recertification RATA testing.

Note that the requirements to notify EPA Regional Offices or State or local agencies remain in effect, unless those respective agencies also issue a waiver.

References: § 75.21(e), § 75.61(a)(5)

Key Words: Notice, RATAs

History: First published in March 1997, Update #11; revised in October 1999 Revised Manual

Question 14.85

Topic: Rule Revision -- Impact on Certification Testing Software

Question: Are the Part 75 revisions expected to impact software certification testing software such as DCAS?

Answer: DCAS is designed for EDR v1.3 and the old rule. Thus, DCAS cannot be used to completely perform EDR v2.1 DAHS verification since the missing data subroutines for CO₂, heat input, NO_x concentration, and moisture are different from the old rule.

References: N/A

Key Words: DCAS

History: First published in October 1999 Revised Manual

Question 14.86

Topic: Update to DCAS

Question: Is there any plan in the works to update or revise the DCAS or any other CEMS software certification (verification testing) programs, tool or related testing requirements?

Answer: There is no plan at this time to update DCAS. Upon converting to EDR v2.1, owners or operators (or their software vendors) must devise tests to check that the missing data algorithms are functioning properly. Likewise, checks must be made to ensure that proper equations are used to compute hourly averages for SO₂, NO_x, CO₂, heat input, and moisture for each formula submitted in RT 520. The Designated Representative (DR) or AAR must submit the following certification statements either in RT 910 or in hardcopy with the first quarterly report submitted in EDR v2.1 format:

Certification Statements:

I certify that the automated Data Acquisition and Handling System (DAHS) component of each CEM system identified here was tested and that proper computation of hourly averages for SO₂, NO_x, CO₂, and heat input for each formula submitted in RT 520 of the electronic monitoring plan, according to the requirements of 40 CFR Part 75, was verified. The results of the verification tests for each formula are available on-site in a format suitable for inspection, as required by 40 CFR 75.20(c)(9) and 75.63(a)(2)(iii).

I certify that the automated Data Acquisition and Handling System (DAHS) component of each CEM system identified here was tested and that proper computation of the missing data substitution procedures was verified according to 40 CFR Part 75. The results of the verification tests for the missing data routine are available on-site in a format suitable for inspection, as required by 40 CFR 75.20(c)(9) and 75.63(a)(2)(iii).

References: § 75.20(c)(9), § 75.63(a)(2)(ii)

Key Words: Certification tests, DCAS

History: First published in October 1999 Revised Manual

Question 14.87

Topic: DAHS Vendor/Platform Change

Question: My question concerns DAHS vendor and platform change. We are currently planning the change in late July and I wish to verify that DAHS verification and daily calibration are all that will be required. Also I could use some clarification on data overlap and component and system ID change requirements.

Answer:	DAHS verification (which includes missing data and formula verification) and daily calibration are all that will be required when you change the DAHS and platform. Please see Questions 13.4 and 13.5 in regard to the data overlap and component and system ID change requirements.
References:	N/A
Key Words:	DAHS
History:	First published in October 1999 Revised Manual

Question 14.88

Topic:	Equations in RT 585 for Source Burning Two Types of Fuel
Question:	I operate a primarily coal-fired unit that occasionally burns natural gas and therefore have identified two equations in RT 520 (<u>i.e.</u> , the standard F-1 equation and the F-23 equation (for natural gas only hours)). Am I required to submit two RTs 585 (<u>i.e.</u> , one RT 585 for coal and CEMS and one RT 585 for natural gas)? Or do I only submit one RT 585, for coal? And what monitoring methodology should I report in column 14 of RT 585?
Answer:	Submit two RTs 585 for the parameter code SO ₂ , one for coal and one for natural gas. In column 14 of the RT 585 for coal, use a methodology code of "CEM," to indicate that an SO ₂ CEM is used when coal is burned. In column 14 of the RT 585 for natural gas, use a methodology code of "F23," to indicate that you use Equation F-23 to calculate SO ₂ emissions when natural gas is combusted. You must also report two RTs 587 for this unit, one for coal (as the primary fuel) and one for natural gas (as the secondary fuel).
References:	EDR v2.1, RTs 520, 585, and 587
Key Words:	Electronic report formats, Reporting, SO ₂ monitoring
History:	First published in October 1999 Revised Manual

Question 14.89

Topic: Test Methods 2F, 2G, and 2H -- EDR Reporting Requirements

Question: If I use any of the new flow rate measurement methods (i.e., Methods 2F, 2G, and 2H) to perform flow monitor relative accuracy test audits (RATAs) under the Acid Rain CEM rule, are there any special recordkeeping and reporting requirements?

Answer: Yes. The recordkeeping requirements for each RATA run are found in § 75.59(a)(7)(ii), paragraphs (A) through (T), and the recordkeeping requirements for each traverse point of each RATA run are found in § 75.59(a)(7)(iii), paragraphs (A) through (M). Section 75.64(a)(2)(xiv) requires quarterly electronic reporting of this supplementary RATA support information for flow RATAs in which angular compensation (for pitch and/or yaw angles) is used and for RATAs in which wall effects adjustment factors are used.

To implement these reporting requirements, EPA has developed three new electronic record types, RT 614, RT 615, and RT 616, in EDR v2.1. These new EDR record types are to be reported along with, and in support of, the summarized RATA results in RTs 610 and 611. Record Type 614 contains run-level information, RT 615 contains traverse point-level information, and RT 616 provides RATA-level information.

The reporting of RTs 614, 615, and 616 is not required until the data acquisition and handling system (DAHS) has been upgraded from EDR v1.3 to v2.1. The deadline for upgrading to EDR v2.1 is April 1, 2000 but you may use EDR v2.1 as of January 1, 2000. If you choose to report in EDR v2.1 as of January 1, 2000, you must use these record types. Therefore, for flow RATAs done prior to the DAHS upgrade, only the applicable recordkeeping requirements under § 75.59(a)(7)(ii) or § 75.59(a)(7)(iii) must be met and electronic reporting of that information is not required. Following the DAHS upgrade, for each flow RATA in which Method 2F, 2G, or 2H is used, report the applicable RATA support information in RTs 614, 615, and 616 as follows:

- (1) Whenever Method 2F or 2G is used for the flow RATA, report one RT 614 for each RATA run that is used in the relative accuracy calculations. Additionally, report one RT 615 for each Method 1 traverse point in each of those test runs. Report RTs 614 and 615 in this manner when Method 2F or 2G is used, whether or not Method 2H is used to determine a wall effects adjustment factor (WAF).
- (2) Whenever regular Method 2 is used for the flow RATA and a wall effects adjustment factor is determined by direct measurement, report RTs 614 and 615, but only for the RATA run(s) used to derive a wall effects adjustment factor.

Report one RT 614 for each such run and one RT 615 for each Method 1 traverse point of each such run.

- (3) Whenever regular Method 2 is used for the flow RATA and a default wall effects adjustment factor is used, in accordance with Method 2H, report one RT 616 for each load level at which the default WAF is applied.

References: § 75.59, § 75.64; 40 CFR Part 60, Appendix A (RMs 2F, 2G, and 2H)

Key Words: Electronic reporting formats, Flow monitoring, Recordkeeping

History: First published in October 1999 Revised Manual

Question 14.90

Topic: Submissions of EDR v2.1

Question: When will ETS be able to accept submissions in EDR v2.1?

Answer: ETS will accept EDR v2.1 submissions beginning with submissions for the first quarter 2000; so submissions after April 1, 2000 may be in EDR v2.1 format. EDR v1.3 formats are also acceptable for the first quarter in 2000.

References: N/A

Key Words: Electronic report formats

History: First published in March 2000, Update #12

Question 14.91

Topic: Monitoring Plan -- Hardcopy

Question: If we submit monitoring plans electronically to States and Regions, must we still keep a hardcopy on site?

Answer: A complete monitoring plan should be available on site for inspection purposes. As long as the plan can be printed out during an inspection, it may be stored electronically

(see § 75.53(e)). The Monitoring Data Checking (MDC) software, which is available from the Acid Rain Program web site, may be used to print out the monitoring plan. If schematics or other parts of the plan are not available electronically, they should be kept on site in hardcopy.

References: § 75.53(e)

Key Words: Monitoring plan

History: First published in March 2000, Update #12

Question 14.92

Topic: Reporting Use of Like Kind Replacement Monitors

Question: For the use of like kind replacement (LK) monitors -- may I list the LK monitor in RT 510 every quarter instead of just the quarters I use it?

Answer: Yes.

References: EDR v2.1, RT 510

Key Words: Electronic report formats

History: First published in March 2000, Update #12

Question 14.93

Topic: DAHS Upgrade and EDR v2.1

Question: Must our DAHS upgrade be complete on April 1, 2000 or may we change over during the second quarter?

Answer: Beginning on April 1, 2000, you must be able to collect all of the required information specified in EDR v2.1. You must also be able to generate a quarterly report in EDR v2.1 format no later than July 30, 2000. All of the data in each electronic quarterly report must be in the same EDR version. Consequently, EDR version upgrades in the middle of a calendar quarter are prohibited.

References: EDR v2.1

Key Words: Electronic report formats

History: First published in March 2000, Update #12

Question 14.94

Topic: EDR v2.1 Upgrade

Question: Assume I upgraded from EDR v1.3 to EDR v2.1 on February 1, 2000. When do I start reporting data availability -- January 1, 2000 or February 1, 2000?

Answer: You may not upgrade to EDR v2.1 in the middle of a calendar quarter. All of the data in each electronic quarterly report must be in the same EDR version. If you are unable to record all of the applicable data required under §§ 75.57 through 75.59 as of January 1, 2000, you must wait until the second quarter of 2000 to begin reporting in v2.1. See Question 14.99 for information on data availability for moisture. For other parameters, the data availability would not be affected by the upgrade from EDR v1.3 to EDR v2.1.

References: EDR v2.1

Key Words: Electronic report formats

History: First published in March 2000, Update #12

Question 14.95

Topic: Use of EDR v2.1 Fuel Sampling Codes in EDR v1.3 Submission

Question: In the time between now and the EDR v2.1 upgrade, can I use EDR v2.1 fuel sampling codes in my EDR v1.3 submissions?

Answer: No, you should use the code in EDR v1.3 that is most representative of the action. Unless it is specifically allowed by EPA guidance, do not submit any EDR v2.1 codes in an EDR v1.3 submission.

References: EDR v1.3; EDR v2.1

Key Words: Electronic report formats

History: First published in March 2000, Update #12

Question 14.96

Topic: DAHS Verification Following EDR Upgrade

Question: What are the DAHS verification requirements for upgrading from EDR v1.3 to v2.1?

Answer: Both formula verification and missing data routine verification are required. The minimum requirements are as follows:

- (1) Emission and heat input rate formulas must be verified at each unit or stack location. The results of these checks must be kept on-site in a format suitable for inspection.
- (2) Missing data routines may be verified either:
 - (i) By performing tests (e.g., a v2.1 equivalent of DCAS) at each location where the software is installed. If the developer of the software is able to perform this testing for customers via network, rather than by visiting each individual site, this is acceptable; or
 - (ii) By installing a standard software package which has been thoroughly tested by the developer for conformance with the Part 75 missing data algorithms.

If Option (ii) above is chosen, the following additional requirements apply:

- (A) The missing data software must be installed at each location using the same type of operating system on which the software was tested by the developer;
- (B) The developer must provide an official statement to each user (e.g., a certificate or a letter from the appropriate corporate official) certifying that the missing data software meets the requirements of Part 75; and
- (C) Each user of the software must add a provision to the QA plan for the monitoring systems (if such a provision is not already in place) to examine

the values substituted by the DAHS during missing data periods for "reasonableness" (e.g., do the substituted values appear to be correct in view of the percent monitor data availability (PMA) and the length of the missing data period; do the substitute NO_x and flow rate values change when the load range changes during a missing data period; are maximum potential values substituted when the PMA drops below 80.0%; etc.). The QA plan must include a corrective action provision to resolve any problems encountered with the missing data routines expeditiously. If correction of erroneous substitute data is found to have a "significant" impact on the reported quarterly emissions or heat input (as defined in the "Quarterly Report Review Process for Determining Final Annual Data," see Appendix C of this Policy Manual), resubmittal of the affected quarterly report(s) is required.

For both Options (i) and (ii), you must keep documentation of the tests performed to verify the missing data routines and the test results on-site in a format suitable for inspection.

- (3) In the electronic quarterly report for the quarter in which you upgrade to EDR v2.1, you must include the following certification statements (as applicable) in RT 910 of the quarterly report file:

I certify that the automated Data Acquisition and Handling System (DAHS) component of each CEM system was tested and that proper computation of hourly averages for SO₂, NO_x, CO₂, and heat input rate for each formula submitted in the monitoring plan, according to the requirements of 40 CFR Part 75, was verified.

I certify that the automated Data Acquisition and Handling System (DAHS) component of each CEM system was tested and that proper computation of the missing data substitution procedures was verified according to 40 CFR Part 75.

I certify that the automated data acquisition and handling system (DAHS) component of each Appendix D system was tested, and that the DAHS correctly identifies any data that is generated using the missing data routines. In addition, I believe that the DAHS performs missing data substitution procedures set forth in Appendix D of Part 75 and clarified by EPA guidance.

I certify that the automated data acquisition and handling system (DAHS) component of the Appendix E system was tested, and that the DAHS correctly identifies any data that is generated using the missing data routines. In addition, I believe that the DAHS performs missing data substitution procedures set forth in Appendix E of Part 75 and clarified by EPA guidance.

References: EDR v2.1

Key Words: DAHS

History: First published in March 2000, Update #12

Question 14.97

Topic: Monitoring Data Checking (MDC) Software Availability

Question: Is MDC 3.0 going to be available free of charge? Whom should we contact with problems?

Answer: MDC 3.0 will be free. You should contact either Kim Nguyen at CAMD (nguyen.kim@epa.gov or (202) 564-9102) or Perrin Quarles Associates, the technical support contractor (mdc@pqa.com or (804) 979-3700).

References: N/A

Key Words: Electronic report formats, Monitoring plan, Reporting

History: First published in March 2000, Update #12

Question 14.98

Topic: ETS Checks for EDR v2.1

Question: How can we see a list of all of the ETS checks and error messages for EDR v2.1 so that we can test our data before submission?

Answer: EPA is in the process of testing the software that contains all the ETS checks that will be performed on quarterly reports submitted using EDR 2.1. Final decisions about what checks will go into ETS production have not been made. You can submit your quarterly report during the first or second quarter, 2000 submission period to see what effect the new software has on your file and you have the opportunity to resubmit until the submission deadline. EPA also has updated the "Quarterly Report Review Process for Determining Final Annual Data." This document contains all ETS checks that will result in a critical error (Status 5) or rejection (Status 6). It is available on the Web and is also included in Appendix C of the Policy Manual.

- References:** EDR v2.1
- Key Words:** Electronic report formats, Reporting
- History:** First published in March 2000, Update #12

Question 14.99

Topic: Moisture Reporting -- EDR Upgrade

Question: For a moisture monitoring system consisting of wet and dry oxygen monitors, if I complete the required initial certification tests of the system in the first quarter of 2000, and also upgrade to EDR v2.1 in that quarter, how do I report hourly moisture data for the first quarter of 2000? When do I start doing percent monitor data availability calculations for moisture?

Answer: If you upgrade to EDR v2.1 in the first quarter of 2000, you must report all data for the quarter in v2.1 format. Therefore, you must report all hourly percent moisture data in EDR RT 212, in accordance with the "Revised EDR Version 2.1 Reporting Instructions", and you must discontinue reporting percent moisture in RT 220.

If you complete the certification tests of the moisture monitoring system in the first quarter of 2000 (i.e., prior to the certification deadline of April 1, 2000), you have the following options for recording and reporting the hourly percent moisture data in RT 212 for the first quarter of 2000:

- (1) You may record and report all of the percent moisture data for the entire quarter using the same methodology that has been used historically. If this option is selected, you would not begin reporting quality-assured data from the certified moisture monitoring system until the beginning of the second quarter of 2000; or
- (2) You may record and report the hourly percent moisture data by the historically-used method from hour 00 on January 1, 2000 to the date and hour of provisional certification of the moisture monitoring system (see § 75.20(a)(3)), and then report quality-assured moisture data from the monitoring system beginning with the hour of provisional certification.

Whichever option is chosen, for all hours in which non-quality-assured moisture data is reported in RT 212, fill in only the Record Type code, Unit/Stack ID, Date, Hour, Average moisture content of flue gases for the hour, and a Method of Determination Code (MODC) of "55" (manual entry of the MODC is permitted). Leave all other

fields in RT 212 blank. If Option 2 is chosen, a complete RT 212 must be reported for all hours after the provisional certification of the moisture monitor.

Once you begin reporting quality-assured data from the moisture monitoring system as described in option (1) or (2), above, you must use the initial missing data procedures in § 75.31(b) for the first 720 quality-assured monitor operating hours. After 720 quality-assured monitor operating hours have been recorded, you must switch to the standard missing data procedures in § 75.33(b) (making note of the exceptions and special cases described in § 75.37, which pertain only to moisture missing data) and begin calculating percent monitor data availability according to § 75.32.

References: § 75.20(a)(3), § 75.30(b), § 75.32, § 75.33(b), § 75.37; EDR v2.1, RT 212

Key Words: Electronic report formats, Missing data

History: First published in March 2000, Update #12

Question 14.100

Topic: Submission of RATA Records

Question: Do we submit the most recent RATA summary records (RTs 611) in every quarterly report or only in the quarter in which we performed the RATA?

Answer: Include complete RATA data (RTs 610 and 611) only for the quarter in which a RATA is performed. Do not include the RTs 611 in subsequent quarterly reports. This guidance pertains to both Acid Rain and OTC-NO_x Budget Program units. This policy supersedes the guidance given in the "NO_x Budget Program Monitoring Certification and Reporting Instructions," dated July 3, 1997.

References: EDR v2.1, RTs 610 and 611

Key Words: RATA, Reporting

History: First published in March 2000, Update #12

Question 14.101

Topic: Minimum Default Unit Load

Question: During certain operating conditions (e.g., startup), a unit may not have any measurable load in megawatts or klb/hr of steam. This creates a problem in the reporting of unit heat input rates for common stacks and common pipe configurations, because the heat input rate measured at the common stack (or pipe) is apportioned to the individual units on the basis of unit load. If the unit load is zero, the heat input rate apportionment equation (Equation F-21a or F-21b) will assign an hourly heat input rate of zero to the unit, irrespective of whether the unit is combusting fuel. Reporting a positive unit operating time in RT 300/18 (indicating that the unit is combusting fuel) and a zero unit heat input rate in RT 300:36 generates an error message in the feedback report for my EDR submission. How can I avoid generating this error message and ensure that a positive unit heat input rate is reported for all hours in which a positive unit operating time is reported?

Answer: You may define a minimum default unit load, which you would use during hours of zero unit load.

A default unit load of 1.0 MWe (or 1.0 klb/hr of steam, as applicable) is recommended. However if, for a particular hour, use of a 1.0 MWe (or 1.0 klb/hr of steam) default unit load value in Equation F-21a (or F-21b) still results (after rounding off) in a zero unit heat input rate, then for that hour, use the smallest whole number value of unit load that gives a reportable unit heat input rate greater than zero.

Include in the QA plan for the facility the exact procedure used to determine unit heat input rate during unit operating hours where the unit load is zero. Manual substitution of the default unit load value and manual correction of the reported unit heat input rate is permissible for such hours.

References: EDR v2.1, RT 300

Key Words: Heat input, Reporting

History: First published in March 2000, Update #12

Question 14.102

- Topic:** Reporting RATA Results and Applying a BAF to a Dual Range Analyzer
- Question:** I have a unit with add-on NO_x controls. The unit has a dual range NO_x analyzer, which is identified as two separate, primary systems. According to Section 6.5 in Appendix A to Part 75, I only need to perform a RATA on the normal (low) range system. Will ETS give error messages if I do not report RATA results for the high range system? Also, for reporting purposes, what bias adjustment factor (BAF) do I apply to data from the high range system? The BAF of the low range system?
- Answer:** To ensure that no error messages are obtained, report the results of every low range RATA *twice*, once under the low range system ID and once under the high range system ID. Use the low range system BAF to adjust the emissions data recorded by both systems.
- References:** Appendix A, Section 6.5
- Keywords:** Bias adjustment factor, RATA, Reporting
- History:** First published in March 2000, Update #12

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